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CONTINUING "THE ELEMENTARY SCHOOL TEACHER"

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EDUCATIONAL NEWS AND EDITORIAL COMMENT

Recognition of the Junior High School

At the annual meeting of the North Central Association of Colleges and Secondary Schools, held in Chicago March 21–23, much attention was given to the definition of the junior high school and to a consideration of its place in the general organization of American schools. The Commission on Secondary Schools had prepared through its secretary, Professor C. O. Davis, of Michigan, a very full statement of the facts regarding junior high schools within the territory of the Association, and the Commission on Unit Courses and Curricula reported recommendations on the aims of the junior high school and on its courses and methods of organization.

It is not possible here to take up in full the reports of the commissions or the actions of the Association. A few matters of major importance may, however, be noted. Of the high schools on the approved list of the Association for 1917, 25.78 per cent have junior high school organization in some form. When it is remembered that the approved list of this Association includes the 1,140 leading high schools from Ohio on the east to Colorado on the west and from these states north to the boundaries of the United States, and when it is remembered that the junior high school movement is scarcely a decade old, the percentage reported is highly significant. No educational movement has spread more rapidly than this.

The aggregate enrolment of pupils amounts to nearly 50,000, and the number of teachers is 2,760.

Certain interesting facts regarding the courses of study may be mentioned. Following are the figures which represent the percentage of schools offering courses in the subjects mentioned: Latin, 27.64; modern languages, 27.30; algebra, 24.23; general science, 30.37; manual training, 88.73; domestic science, 88.39; commercial work, 16.72; distinctive vocational work, 5.11. From these figures it is evident that there is very little real ground for the anxiety often expressed by the opponents of the junior high school that this institution is to become a pernicious device for bringing premature trade education into the public schools.

Indeed, the statement of the purposes of the junior high school adopted by the Association makes it clear that the broadest possible aims are in the minds of those who are organizing this new institution. The aims enumerated are as follows:

1. To continue through its instructional program the aims of public education in a democracy.

2. To reduce to the minimum the elimination of pupils by offering types of work best suited to their interests, needs, and capacities.

3. To give the pupil an opportunity under systematic educational guidance to discover his dominant interests, capacities, and limitations with reference to his future vocational activities or the continuance of his education in higher schools.

4. To economize time through such organization and administration of subjects and courses both for those who will continue their education in higher schools and for those who will enter immediately into life's activities.

The action of the Association with regard to admission to the junior high school was as follows:

Admission of pupils into the junior high school shall be determined on the basis of maturity and ability of the pupil to profit by the junior high school work offered, rather than by completion of the sixth grade solely. Therefore,

a) All pupils who have completed the first six grades of the elementary school should be promoted to the junior high school.

b) All mentally normal but retarded pupils should be transferred to the junior high school at least one full year before the legal age for leaving school. For many of these, special educational provision must be made.

c) Other children who have shown marked ability even though they have not completed the sixth grade should be admitted.

These quotations are enough to indicate the general spirit of the Association's action. There can be no doubt that the influence of this action will be to give a strong impetus to the movement. At the same time the movement will be directed into more definite channels by the careful and comprehensive survey which furnished the basis of the Association's action.

Practice Teaching at Cedar Falls, Iowa

The problem of providing practice teaching for students who are in training in state normal schools has always been a matter of grave difficulty. Where normal schools have grown to the huge size attained in several of the institutions in the central states, the problem becomes almost insoluble.

The Iowa State Teachers College at Cedar Falls is one of the largest normal institutions in the world. It is situated in a small town which is quite incapable of providing adequate practice facilities. The commission which recently surveyed the higher institutions of education in Iowa recommended the breaking up of normal training in that state and the establishment of several normal schools. One of the chief reasons for this recommendation was the difficulty of finding adequate practice facilities. Indeed, it is quite impossible to think of the existing facilities in that institution as adequate.

Now comes a new complication. Certain citizens have applied to the courts to compel the Board of Education of Cedar Falls to close the schools of the town to practice teaching. Up to this time such teaching has been permitted. The court granted the injunction. As this issue of the *Journal* goes to press an appeal is pending. The situation as it was after the granting of the injunction is reported in the following clipping from the *Waterloo Times-Tribune:*

> The decision handed down by Judge Boies leaves no doubt in the minds of the school board or anyone else but that the court believes that student teachers must be discontinued and that the court intends that the practice be discontinued at once.
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> The decision in the case is as follows:
>
> "I find that the arrangement known in the record as 'co-operative plan,' under which for a number of years students of the Iowa State Teachers College have been permitted as a part of their training to engage in practice teaching

of the pupils in the public schools of Cedar Falls, under the supervision of critic teachers employed by and paid in whole or in part by the normal school, was illegal as heretofore carried on. Said college students who have been engaged in practice teaching were not provided with teachers' certificates and were not under contract with the school board of the Independent District of Cedar Falls, as required by law.

"The defendants now propose that in the future they will avoid the illegalities mentioned by procuring for each practice teacher a provisional certificate under Section 2734-p2 of the Supplement to the Code, and have the Independent School District of Cedar Falls enter into a teacher's contract with each practice teacher for a twelve-weeks term, for a compensation of one dollar.

"It seems to me that the proposed plan of arming each of these practice teachers with provisional certificates obtained in wholesale lots, for the apparent purpose of accommodating these students of the training college, rather than supplying the needs of the public schools, is merely an attempted evasion or, at the most, a colorable compliance with the school laws of the state, which are designed to give to the public schools the benefit of the services of teachers holding regular teachers' certificates as vouchers that they possess certain specified qualifications.

"Nor do I believe that the short term, twelve week contracts, for the nominal compensation of one dollar, are such teacher's contracts as are contemplated by our statute.

"The 'co-operative plan' is also illegal and unwarranted in law, for the reason that it involves the turning over of the public school property, equipment and pupils for use by the student teachers for practice teaching under critic teachers who are employed by and paid, wholly or in part, by the State Teachers College. The primary purposes of such supervised teaching is to enable the normal students to obtain sufficient credits to enable them to graduate from the Teachers College, and is to a considerable extent simply converting the public schools into a school of pedagogy carried on by instructors from the college, who are not and could not legally be in the employ of or under contract for such purpose with the public school board.

"I am aware that the school board of a public school is vested with a wide discretion in the management of school affairs, and that the courts have no right to interfere except in a case where it is plain the board has, by acting illegally, exceeded its powers.

"It seems to me this is such a case, and it is, therefore, ordered that a writ of mandamus issue, directing the defendants to discontinue the existing arrangement, under which normal students not holding regular certificates are permitted to engage in practice teaching in the public schools of Cedar Falls under critic teachers employed by the college, and the defendants are enjoined from using the public school buildings and equipment for the purpose of teaching pedagogy by normal critic teachers to college students. The temporary injunction issued against the defendant H. C. Moeller, county superintendent,

is made permanent, and it is ordered that judgment and decree be entered in accordance herewith."

The case brought by the plaintiffs against the school board, the county superintendent and the city superintendent of schools was filed in the district court December 3, 1917.

The original petition requested the court to issue a temporary injunction and mandamus to the effect that no person be engaged as a teacher in the Cedar Falls schools who had not a certificate to teach. It also asked the court to restrain payment of funds by the school board to supervisors or critics who were engaged in teaching at the Iowa State Teachers' college.

The case was brought to trial at the January term of the Black Hawk county district court and attracted wide interest throughout the city of Cedar Falls, Waterloo and the state.

The defendants attempted to show that the student-teacher system was all right and a good thing for both the pupil in the city schools as well as to the student teacher.

The plaintiffs argued points of law regarding the case and contended that the practice was entirely illegal and should not be allowed to continue. Many patrons of the public schools of Cedar Falls were called as witnesses and testified they strongly objected to the practice. The trial lasted an entire week.

This decision handed down by Judge Boies will have a direct bearing on other normal schools throughout Iowa.

Many other schools in Iowa where normal colleges are located have student teachers and some have objected to the practice. It is probable this decision will be used as an example in other normal cities.

Following the announcement of the court's decision four members of the school faculty tendered their resignations, but at the request of the members of the board reconsidered their action last evening and will remain until the close of the year.

The case is indeed one which will excite the widest interest, for it revives an issue which comes up with the establishment of every normal school.

The Issue at Cedar Falls

The court seems to overlook the fact that the state is under obligation to provide a place where teachers can be trained. The schools of Cedar Falls are state schools, not schools of the town. If the state of Iowa recognizes its obligation to Cedar Falls and to the other towns of the state, then it must devise some legal means of providing practice teaching for teachers in training.

In England this principle is clearly recognized. Every school receiving public support is by virtue of that fact subject to the

demands of the Central Board of Education and this same Central Board is in charge of the normal institutions. The adjustment is therefore direct and easy.

The difficulty in Iowa grows in part out of the scattered and indefinite character of our American state educational organization and in part out of the fact that the Iowa State Teachers College has outgrown the section of the state in which it is located and is yet determined to grow still larger and to prevent the establishment of another normal institution in the state.

The Supply of Teachers

From various parts of the country come evidences that there is a scarcity of teachers. The following clipping from the *New York Globe* describes the situation in New York City:

The supply of teachers for elementary schools is being depleted rapidly. About 375 women were appointed to begin service on the first of February, but an unusually large percentage of these declined to serve. These declinations, together with a large number of resignations and the organization of new classes, have increased the number of vacancies to be filled on April 1 to nearly 350. There are less than 1,000 names on the eligible list, where a year ago there were 2,000 teachers awaiting appointment. Largely because of the long eligible list and the inability to secure an assignment within a reasonable time the teachers sought other work, and now refuse to give up these positions to teach. Unless something is done to increase the supply of teachers it will not be long before the eligible lists will be exhausted. In all three of the city training schools for teachers today there are fewer than one thousand girls preparing to teach. This represents the nucleus of the supply of teachers for two years. At the present rate of appointment the Board of Education needs an eligible list of about 1,500 women yearly.

Present plans of the superintendents call for appointments that will probably exhaust the February, 1917, eligible list down to 72 per cent, although it is possible that the girls with 72 per cent will also be named. The few men on the list will be appointed. Kindergarten teachers will be nominated down to 76.5 on the June, 1915, list.

There are also a number of vacancies in the upper grade classes, especially in history and civics, sewing, Gregg and Pittman stenography, music, physical training, drawing, English, biology, bookkeeping, and mathematics. These will be filled by the promotion of teachers from the lower grades.

It is not difficult to find a reason why as many girls are not preparing to teach as in other years. The fact that for some years there was a long eligible list and that those who qualified were forced to wait from one to two years for

a position has not encouraged girls to take up teaching. Now when eligible lists are being exhausted more quickly other positions offer better inducements and they are declining appointment.

In what other service today are the financial returns so meager as in teaching? The girl who graduates from high school and then completes a two-year course of training begins teaching at $800 a year and cannot receive more until she has taught for three years. Then for three years more she receives $900.

It is necessary only to compare these returns with the inducements offered to high-school pupils who have spent six months in business schools to realize why it is that teaching isn't attracting the best pupils, as it once did.

Teachers' Salaries

The economic situation makes it legitimate to call attention vigorously to the matter of teachers' salaries. If the schools of this country are to be supplied with teachers, especially trained teachers, there must be an increase in teachers' salaries. The following statement, issued by the Commission of the Massachusetts Teachers' Association, presents a number of interesting points of view, especially when it is remembered that the lack of state requirements for certification of teachers relates to the state which is older in educational matters than any other in the Union:

An educational bill of importance is now in the hands of the Committee on Education of the Legislature. It is House Bill, No. 1069, which provides for a minimum salary and state certification for public day school teachers.

This twofold bill, if enacted, will undoubtedly result in a great improvement, materially and professionally, of the teaching force, especially in the small towns of the State. Indeed the need of such legislation is imperative, and its benefits will probably be more notable throughout the Commonwealth than those of any other educational legislation within a quarter of a century.

For years much has been heard from capital and labor circles of the menace to American conditions, industries, and institutions from the pauper labor of Europe, but as yet, neither labor nor capital has lashed itself into any noticeable fury of indignation over the pauper wages paid in certain Massachusetts towns to the public-school teachers who to the best of their ability are endeavoring to develop intelligent, patriotic Americans of the boys and girls entrusted to their care.

According to a bulletin of the State Board of Education, the following data concerning teachers' salaries in towns of less than 5,000 population for the full school year ending 1916 give some idea of the necessity of a minimum salary law: 1,411 teachers received less than $500; 1,024 received $450 or less; 581,

$400 or less; 164, $350 or less; 35, $300 or less; 10, $260 or less; 3 received $216; and 1 received as little as $170.

The bill provides that the minimum salary shall be $550; it becomes operative, as does the provision for state certification, on January 1, 1919.

Opponents of a state minimum salary law for teachers argue that it would interfere with local autonomy in school affairs. This objection is far from convincing, inasmuch as the state from its earliest days has made the education of its citizens one of its own primary obligations. In accordance therewith the Constitution explicitly provides that the Legislature shall cherish "the interests of the public schools and the grammar schools in the towns"; as a result of this injunction the statutes pertaining to public instruction are so numerous as to require 120 pages to hold them. Many of these laws, whether of state-wide application or relating specifically to certain cities and towns, naturally restrict local action in school matters.

Thirteen states already have enacted minimum salary laws for public-school teachers. They are Indiana, Iowa, Kentucky, Maryland, Mississippi, New Jersey, New Mexico, North Dakota, Ohio, Pennsylvania, Rhode Island, Utah, and West Virginia.

As to state certification, it is a remarkable fact that the state exacts no standard whatever of preparation as a prerequisite for teaching in the elementary schools. With no restrictions or barriers set by the state, and with no local system of certification such as prevails in the cities and larger towns, many very inadequately prepared persons drift into the business of teaching. Their services are in demand, for they are procurable at a very low rate of compensation. In many communities, saving money in this way regardless of the quality of the instruction and at the expense of the children is considered as business acumen and high financiering on the part of the school committees responsible.

In this state annually, 150 teachers of this inadequately prepared class enter the service, competing with the well prepared graduates of the college and of the state normal schools, and in many cases compelling the latter to seek positions in other states, where higher salaries and greater professional preparations shut out the competition of the poorly prepared and the low salaried. A state certification system would be the most potent force in retaining for the service of the state those who at her expense have been trained in her institutions for teaching.

To establish a state-wide certification requirement would be but following two precedents already established that bring forth beneficial results, the first by act of fourteen years ago providing that after January 1, 1905, no person shall be elected to a union superintendency who does not hold a certificate of fitness and competency from the State Board of Education; the second by act of several years ago providing that after July 1, 1912, no person shall be eligible to teach in a high school aided directly by the Commonwealth who

does not hold a high-school teacher's certificate issued by the State Board of Education.

The bill provides that the certificates will be issued by a state certifying board of five members under the management and direction of the State Board of Education. Under the bill all teachers now in service or on leave of absence who previous to the passage of this measure will have been certified by any city or town shall be exempt from any other requirements for state certification; and teachers not locally certified who will have taught for a continuous period of not less than six months immediately preceding the first day of July, 1918, will receive State certification, providing an application, with a statement of satisfactory service, is made to the certifying board prior to November 1, 1918. All other teachers if found qualified by examination or otherwise shall be granted certificates.

Under the provisions of the bill, school committees of cities or towns may require as conditions of service in the public schools thereof, such qualifications as they may deem desirable, in addition to those required by the state certifying board.

Committees of a Board of Education

The problem of doing the work of a board of education without breaking the board up into isolated committees has been met and in the opinion of Mr. Springer, the president of the Board of Education of Ann Arbor, Michigan, solved by the following device, which he is good enough to report in full to the *Journal:*

Ann Arbor's Board of Education consists of nine members, three being elected each year for a term of three years. Prior to two years ago it had been operating by means of nine committees, each member of the Board serving as chairman of one committee, second member of another committee, and third member of a third committee. In most instances this form of organization resulted in the chairman of the committee doing the work of that particular committee.

Two years ago the committees were reduced to three with three members each. The Committee on Educational Interests took over the work of the Committees on Teachers, Textbooks, Course of Study, and Janitors. The Committee on Finance and Property took over the work of the Committees on Finance, Buildings and Grounds, and Supplies. The Committee on Allied Activities took over the work of the Committees on Health, Library, Playgrounds, and Summer School. We found that this form of committee work had a decided advantage over the old form in that it brought about a definite consultation by the members of the committees concerning the matters intrusted to their care.

In organizing the Board this year the three committees were abolished and a Rotating Executive Committee was established. This committee consisted, in the first instance, of three members to serve respectively one month, two months, and three months. Each month the retiring member serves as chairman of the committee and at the close of the monthly meeting the second member of the committee becomes chairman, the third member moves up to second place and a new member is appointed as the third member of the committee. This method permits a continuity of action as at all times the majority of the committee are hold-overs. The Board of Education meets monthly and refers all matters of detail to the Executive Committee with power to act. The Executive Committee holds weekly meetings. The chairman of the committee presents a monthly report to the Board of Education and a synopsis of the weekly meetings is sent to the members of the Board. There is also sent to the members of the Board three days in advance of its meeting a statement as to the general matters which will be referred to the Board by the Executive Committee at its next meeting.

One of the arguments often given for the small school board is that it can act as a committee of the whole and thus study every phase of the school problems. The practical working out, however, of even the small school board is that much work is referred to special committees appointed to consider matters of a similar nature. The value of the rotating committee plan of organization is that during the year every member of the Board will touch every phase of school activity and in that way will become in a short space of time better acquainted with school problems than is possible under any other arrangement. The number of months which a member will serve on this Executive Committee in any year will of course be dependent upon the size of the Board and the size of the committee. This plan provides a method by which action may be secured by the superintendent at any time on any matter of detail, for the Executive Committee, while not having power to establish new policies, may act on any matter of detail requiring immediate attention.

THE COURSE IN NATURAL SCIENCE IN THE UNIVERSITY ELEMENTARY SCHOOL. III

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GRADE VI

In the first semester personal and community hygiene receives the major amount of attention. As a preliminary to this study, the pupils treat in an experimental way several questions about the struggle for existence in the plant and animal kingdoms. A brief treatment of man's struggle for existence follows. The pupils learn that more plants and animals begin life than can possibly mature and that there are various factors which limit life. This serves as an introduction to the study of personal hygiene. The pupils learn that their bodies are like machines, which must be treated properly to function efficiently. In the study of community hygiene they become interested in milk and water supply, garbage and sewage disposal, the sanitary preparation and distribution of food, prevention of the spread of infectious disease, and parks and playgrounds.

In the second semester the subject is magnetism and electricity. The pupils make much of the apparatus used and perform their own experiments with it. Along with the experimentation they make and use magnets; construct and use push buttons, cells, burglar alarms, and galvanoscopes; do simple wiring; study electric bells, buzzers, compasses, and electroscopes and telegraph instruments; and examine the telephone and the wireless apparatus.

Children of this age are keenly interested in learning to manipulate apparatus and to experiment with some of the forces of nature,

and in understanding some of the practical applications of these forces in the industries.

OUTLINE OF MATERIALS AND ACTIVITIES

A. Struggle for existence among plants
   1. Using several of the following: sunflower, cress, radish, hollyhock, butterprint
      a) Pupils collect plants with seeds from gardens and vacant lots.
      b) They sketch the seed-bearing structure and seeds.
      c) They count seeds of single plants and compare numbers. They count single seeds, or pods, or by spoonfuls, or by weighing and computing.
   2. Pupils estimate ground needed if all the seeds of the plants brought in should grow.
   3. What are some of the factors which limit the growth of all the seeds which mature and are scattered broadcast and how do these factors operate?

B. Factors concerned in the growth and welfare of animals and man
   1. The problem of getting food
      a) Methods adopted by animals to secure food. Use of teeth, claws, sense of smell, etc.
      b) How does man secure his food? Primitive man and man of today. Pupils trace food from farm, ranch, etc., to city markets and homes.
   2. The teeth: kinds and uses
      a) The teeth of certain animals, such as cat, beaver, horse; adaptations for purposes served.
      b) Man's teeth are compared with those of animals.
         (1) Resemblances and differences.
         (2) The first set, or milk teeth.
         (3) The second set, or permanent teeth.
         (4) Function of teeth.
         (5) Pupils study their own teeth at home with mirror and count number of each kind.
      c) Care of the teeth.
         (1) When they should be cleaned.
         (2) How they should be cleaned.
         (3) Decayed and crooked teeth.
         (4) Why periodical visits to the dentist are necessary.
   3. Mastication and digestion of food
      a) Reasons for chewing food.
      b) Saliva and salivary glands.
      c) Drinking water at meals.
      d) Rapid eating and overeating.
      e) Irregular hours for meals and eating between meals.

f) Candy and other sweets.
g) How is digested food sent to all parts of the body?
h) How does food help to heat the body and nourish it?

4. Stimulants and narcotics

Meaning of stimulant. Dangers in the use of stimulants. Tea and coffee. Alcoholic drinks. Tobacco. Cigarettes.

5. The blood

Circulation of the blood. Counting the pulse while sitting and after exercise. Why beat faster? Relation to heart beat.

6. Ventilation

Relation of fresh air to the blood. Relation of CO_2 to ventilation. Pupils experiment with CO_2 from the lungs, testing it by blowing through tube into limewater. Demonstration by groups of children with a box having sliding glass cover and holes on sides for windows. Candles are burned inside to represent people. (In what ways are candles like people?) Best methods of ventilating the house and especially the sleeping-room. Ventilation system of our school.

7. Respiration

a) Parts of the body used in breathing.
b) Deep and shallow breathing.

C. Personal hygiene

Teacher puts a sentence, or "health epigram," on the board daily, concerning the hygiene of the body, the home, the city, etc. It serves as a text for a short discussion in which teacher and pupils share.

1. The living machine

The body is compared to the steam engine. How can we get the most and best work out of each?

2. Hearing and eyesight

The structure of the ear is demonstrated by the use of a model. Use of wax in the ears. Care of the ears. The structure of the eye is demonstrated by the use of a model. How best use the eyes in reading. Good and bad reading lights. Care of the eyes.

3. Sleep

Why do we need sleep? The body is compared to the electrical storage cell. Hours for sleep needed by children.

4. Personal cleanliness

Necessity for keeping the body clean. Bathing and cold showers. Public baths, bathing suits, and towels. When not to bathe.

5. Colds

How we take cold. How to avoid colds.

6. Athletics, exercise, and outdoor life

Value of physical exercise. Danger of strenuous sports.

7. First aid to the injured

Fainting. Nosebleed. Bleeding from cuts. Burns. Burning clothing. Bee stings. Drowning and other accidents.

D. Hygiene and city life

1. Means used by the city to keep the people healthy

Playgrounds, parks, and public baths. Street cleaning. Ashes and garbage. Inspection of foods. Health regulations.

2. Water supply

Methods employed for purifying drinking water. Wells and springs.

3. Sanitary conditions of stores

Pupils select one or more stores in their communities, visit, and report on their condition.

4. Contagious diseases and their control

Causes of certain infectious diseases. Some common diseases and treatment of patients. Mosquitoes, malaria, and yellow fever. Flies as spreaders of disease. Pets as spreaders of disease.

5. Healthful homes

Importance of sunshine and fresh air in the home. Objections to carpets, heavy upholstery, draperies, etc. Ventilation in the home (a review). Outdoor sleeping-rooms. Sweeping and dusting. Care of the sick room. Importance of the family's investigating milk and water supply, markets, groceries, etc.

E. Magnetism and electricity

1. Bar magnets

Pupils experiment with various kind of magnets and determine their properties and their differences. Study lodestone. The compass.

2. The electric bell or buzzer

These are studied by the pupils, the parts learned, and the differences between them noted. Pupils attach bell to dry cell and learn why it rings and how it rings. Pupils trace the path of the electric current through the bell. Diagrams of bell are drawn in notebooks and parts labeled. Applications: doorbells, school bells, call bells, etc.

3. The cell (grenet or bichromate)

Pupils make a cell in a bottle with potassium bichromate, water, and sulphuric acid, carbon and zinc rods. Connect it with bell and use it.

4. Push buttons

Pupils study the common type and connect button with bell and cell. When the principle is learned the pupils make a simple push button with a block and two pieces of metal and connect it with cell and bell. Applications.

5. Burglar alarm

Pupils bring boxes with sliding wooden covers and devise ways of attaching metal strips or wires to the box or cover (which represents a

window) and connecting with a bell and a cell so that the bell rings when the cover is raised.

6. Wiring houses for doorbells and call bells

Pupils draw diagrams applying the principles already learned to wiring a house for a front-door bell, and a call bell in kitchen connected with the dining-room table. Several drawings put on board for class criticism.

7. Other kinds of cells

The dry cell. Pupils examine an old cell and learn how it is made. Diagrams are drawn. Discussion of why cells wear out and how they may be revived. Voltaic cells are made by pupils and used with bells and galvanoscope.

8. The galvanoscope

Pupils are given the idea that a wire must be wound around a block in such a way that a compass can readily be slipped under the wire. Then they devise the best way.

The galvanoscope is connected to cell and push button, placing the block so that the wire runs parallel with the compass needle. Pupils note and try to explain the action of the needle when the current is turned on. The effect on the needle is noted when more or less wire is wound around the block, and when more or less current is used. Applications: to test a cell for a current; to learn something of the strength of the current.

9. Frictional electricity experiments

Static or frictional electricity. Studied by experiments with glass rods, ebonite, flannel and silk, cork, etc. Discussion and illustrations of the electroscope, the electrophorus, and the nature of lightning.

10. Electric currents used for heating

Pupils connect two dry cells with very short piece of small iron wire. Why does it become red hot? Application to electric lights, heating cars, cooking by electricity, electric irons, etc.

11. The solenoid

Pupils make solenoid by winding covered copper wire around a pencil, then removing pencil. They attach it to a cell and push button and test ends of the coil of wire with compass and iron filings. Results and causes.

12. The electromagnet

Pupils put a nail through the solenoid and test nail with iron filings. Test each end with compass. They bend a large nail, or bundle of iron wires, into U-shape and wind with covered copper wire, and test. Use of electromagnets in bells, buzzers, telegraph instruments, mining, and other industrial operations.

13. The telegraph instrument

Pupils make a simple instrument by using the U-shaped magnets on a block of wood. Simply made push buttons are used for keys.

They connect instruments and send messages, using the Morse or the Continental code.

14. The telephone

Pupils study receiver and transmitter and learn how they work and how conversation is transmitted.

15. Electric lamps

The carbon lamp, tungsten or mazda, and the arc light are examined, studied, and drawn.

16. Electroplating

Pupils put some copper sulphate solution in a tumbler with a copper strip and something to be plated. They attach wires from a cell to the copper and to the thing to be plated, and turn on current. They remove the plate by reversing the current. Discussion of silver-, gold-, and nickel-plating.

17. Electric motors and dynamos

Pupils test and study toy motors. Teacher demonstrates how electricity is made with hand-power dynamo. Uses of motors and dynamos. A power plant is visited by the class.

18. Trolley cars

By diagrams on the board the class is shown how motors are used in running cars. Third-rail system explained.

19. Wireless telegraphy

Demonstration: sending and receiving apparatus is set up in the room with overhead wires and operated by the pupils.

TYPE LESSONS

The type lessons here presented will serve for both sixth and seventh grades.

A. Bar magnets

1. Pupils experiment and make lists of things attracted and not attracted.
2. Pupils suspend magnet to see where it points.
3. Lodestones or natural magnets.
4. Pupils determine by experiments how the poles of magnets behave toward each other.
5. Pupils learn to make magnets out of pieces of steel or watch springs.
6. Other metals are tried to see if magnets can be made from them.
7. Pupils reverse poles of each watch-spring magnet.
8. Pupils heat a watch-spring magnet to take magnetism out.
9. Watch-spring magnets are broken in halves to see if they are spoiled.
10. Action of a magnet on a compass.
11. Pupils experiment with magnet, nail, and iron filings to learn about magnetizing by conduction and induction.
12. Dipping compass needles, and how they work.

13. Earth's magnetic poles and magnetic field about the earth. Relation to compass.
14. Pupils determine what substances magnetism will act through by placing iron filings on paper, cardboard, board, sheet metals, etc., and rubbing the magnet under each.
15. Pupils study magnetic field about a magnet by laying cardboard over a magnet, sprinkling iron filings on the cardboard, and gently tapping it. Different combinations of two or three magnets are tried.
16. Pupils explore the field about a magnet with a compass.
17. The compass is studied and a simple one is made.

B. Static or frictional electricity

1. Pupils are given glass rods and ebonite rods, pieces of flannel and silk, cork, pith, and some bits of paper.
   a) They rub the ebonite with the flannel or on their clothing, and bring it near the bits of paper. (A rubber comb, a stick of sealing wax, and a fountain pen are also rubbed and tested.)

   How do the bits of paper act?

   Hold the hand near the rod with papers on it. Does the paper fly to the hand? Does it jump back to the rod?

   What reason can you give for the behavior of the paper?

   Place your hand on the rubber part of the rod, then try it with the paper again. Do the bits of paper stick to the rod now? Why?

   b) Rub the glass rod with silk and repeat the experiments.
2. The pupils suspend by a silk thread a small piece of pith (from corn, elder, or burdock) or a piece of cork or small paper wad and bring the rubbed rod near it.

   What happens first?

   Why does the pith jump away from the rod?

   Can you now catch it or touch it with the rod?

   Touch the pith with the fingers and try again. Why is it again attracted to the rod?

   The questions bring out the fact that the pith is first attracted to the charged rod, becomes charged with the same kind of electricity as the rubbed rod has, and then flies away because like charges repel each other.

   How does this action compare with the action of poles of magnets?
3. Next the pupils charge the pith again with the ebonite rod and then bring near the pith the rubbed glass rod.

   Why does the pith, charged by the ebonite rod and repelled by it, now become attracted to the glass rod?

   Are the electric charges on the different rods alike or different to do this?
4. Rub an ebonite rod and suspend it so that it swings easily.

   Bring another rubbed ebonite rod near it.

Bring a rubbed glass rod near the suspended rod.

In each case how does the suspended rod behave?

What rule can you make regarding the action of like charges and unlike charges on each other?

C. The electroscope

1. Pupils make a "bottle detector" or electroscope (see reference books) and test and charge it with rubbed rods.
2. Pupils send an electric charge through a wire which is attached to the wire in the bottle, by touching the rod to the loose end of the wire. (Static electricity changed to current electricity.)

D. The electrophorus

Pupils make by mixing and melting 3 oz. resin, 1 oz. dry shellac, and 1 oz. beeswax in a tin pie plate and allowing to cool. To a smaller pie plate they attach some silk threads to hold it by.

Experiments are performed with it by the pupils further to illustrate static charges.

E. Lighting

The storage of electricity in clouds, the passing of charges (lightning flashes) between two clouds or between a cloud and the earth are shown to be phases of natural static electricity.

Thunder, lightning rods, and sheet lightning are discussed.

F. Other ways of producing static electricity

Many children are familiar with examples of making it, such as stroking a cat's back, scuffing on a carpet, combing the hair on a cold morning, etc.

Time allotment.—Two hours per week are allotted to this course in the sixth grade. No assignments for home study are given. More than half of the class time is used for experimentation and construction; the rest is used for discussion, writing records and drawing, and supervised study.

Textbook.—For the course in hygiene, two textbooks are used: O'Shea and Kellogg, *Health Habits*, and Jewett, *Town and City*. Other books are used freely for reference and supplementary reading.

No textbook is used in the course in magnetism and electricity. A notebook is kept by each pupil in which he records his experiments and the principles learned.

References for the teacher.—

1. Hygiene

O'Shea and Kellogg, *Health and Cleanliness.*

Bertha Brown, *Health in Home and Town; Good Habits for Boys and Girls.*

C. N. Millard, *The Wonderful House That Jack Built.*
A. P. Knight, *Hygiene for Young People.*
Woods Hutchinson, "Woods Hutchinson Health Series."
Hoag, *Health Studies.*

2. Magnetism and electricity
Avery-Sinnot, *First Lessons in Physical Science for Grammar Grades.*
Harrington, *Physics for Grammar Schools.*
Higgins, *Lessons in Physics.*
Various high-school textbooks in physics.

GRADE VII

This course consists largely of laboratory work in elementary physics. The aim is to give information about ways in which physical forces are used in the arts, to foster the desire to investigate, to stimulate more scientific thinking, and to develop constructive ability. The list of projects shown below includes work with glass tubing, such as cutting, bending, sealing, and drawing; the making of fountain-pen fillers and apparatus for use in experiments in boiling, distillation, siphoning, etc.; the making of air thermometers; the constructing of levers and other simple machines; experimentation with solutions and crystallization; the making of coal gas; and devising apparatus for filtering water.

OUTLINE OF MATERIALS AND ACTIVITIES

A. Some effects of heat
1. Boiling water
a) Pupils boil water in glass flasks and note the many phenomena.
b) They find temperature of boiling water.
c) They find temperature of steam.
d) They compare temperatures of boiling water and boiling alcohol.
e) Effect on boiling temperature of adding salt, etc.
f) Under certain conditions water will boil at lower temperatures.
g) Application of this principle to cooking at high altitudes.
2. Evaporation
a) Experiments on evaporation. Discussion.
b) Pupils set some water aside and heat for a few minutes an equal amount to see if evaporation can be made to occur more rapidly.
c) Pupils use vessels of different shapes to see in which evaporation occurs the fastest.
d) They learn by experiment that evaporation results in cooling.
e) Application of principle.

3. Condensation and distillation
   a) Pupils try experiments to condense steam.
   b) The pupils devise and make apparatus for condensing steam faster and use this for separating water from different solutions.
4. Some effects of application of heat to solids, liquids, and gases
   a) Solids

   Pupils heat iron wire and other metallic substances and learn that they expand

   Applications to bridge-building, riveting, railroad tracks, etc.
   b) Liquids

   Pupils heat a flask of water, having a glass tube in the cork, and find that the water expands. On cooling, it contracts again.

   Discussion of freezing of ponds; floating of ice; bursting of frozen water pipes, mercury thermometers, etc.
   c) Gases

   Pupils learn by keeping the glass tube in the stopper of a flask under water, while holding the flask in the warm hands, that air expands when heated. Why is water "sucked up" into the tube when the hands are removed?

   Application to drafts and chimneys, hot-air furnaces, hot-air balloons, etc.
5. Conduction of heat
   a) Pupils learn something about conducting power of wood, iron, copper, and aluminum wire, etc., by holding one end of each in the flame.

   Do all metals conduct heat equally well?

   Why does a tiled floor feel colder than a rug in the same room? An iron or stone object colder than wood, rubber, etc.?
   b) They test the conducting power of water by heating the top of a test tube of it to boiling while holding it at the bottom.

   Why does water in a room feel colder than the air of the room which is of the same temperature?

   Poor conductors of heat: covers of steam pipes, wooden handles on kitchen utensils, asbestos mats, double-doors and windows, woolen clothing, thermos bottles, etc.
6. Heating buildings by hot water and warm air
   a) Pupils heat gently a test tube of water containing a little sawdust, noting how the sawdust acts.
   b) Demonstration of hot-water heating with chalk boxes made to represent rooms and glass tubing for pipes, connected with tank on top. Heating the lower part of pipe causes the water to circulate.
   c) How do currents of air move in a room where there is a hot stove? Simple experiments are performed to show convection currents of air.

7. How can we prove that the sun, a flame, a hot stove, or a fireplace radiates heat?

   Pupils devise and perform experiments.

8. The meaning of burning
   a) Pupils ignite a match or splinter. Why does it burn?
   b) Burn a stick with a hot rod of glass or iron.
   c) Ignite sulphur and phosphorus with warm rod.
   d) Is air necessary to burning? How can we prove it?
   e) Separate nitrogen from the air and test it with burning stick.
   f) Pupils make several bottles of oxygen and test it.
   g) Kindling temperature. Meaning.
   h) Rusting and combustion. Cause and prevention of rusting.
   i) Spontaneous combustion. Demonstration.
   j) Lessons from a burning candle.
   k) How to put out small fires.
9. Heat and cold by other chemical action
   a) Pupils learn that heat is produced by putting sulphuric acid into water or by putting an acid on zinc.
   b) Pupils take temperature of a dish of water and then dissolve salt in it. Is temperature the same? Repeat, using sal ammoniac, ammonium chloride, and ammonium nitrate.
   c) They mix salt with cracked ice and take temperature. How does a mixture like this freeze ice cream?
10. Thermometers
   a) Types of thermometers are studied.
   b) Pupils make an air thermometer and compare its workings with a standard thermometer.

B. Work with glass tubing

1. Pupils learn how to cut or break glass tubing, how to bend it after heating it, how to seal it, how to draw it out, and finally how to make fountain-pen fillers. This gives the class ability to make new kinds of apparatus.

C. Study of simple machines

1. The teeter-totter or seesaw
   a) With sticks, fulcrums, and weights the pupils solve simple problems and learn the relations between the lengths of the parts of the seesaw on each side of the fulcrum and the weights.

   By using the same stick as a crowbar the power necessary to pry up or lift a given weight is easily solved. Such topics as this are correlated with mathematics.

   b) The following machines are studied and classified: scissors, balance scale, pincers, pump-handle, wheelbarrow, nutcracker.
   c) Pupils make balance scales of blocks, sticks, and cardboard and weigh things and study principle.

2. Other machines
   a) Another type of machine, represented by the windlass and water bucket, is demonstrated and the relation between the weight of the bucket of water and the muscular power necessary to draw it up is studied.
   b) The principle of the derrick is illustrated in the same way. Practical mathematical problems are solved.

   Applications of this type of machine: drawing well-water; derricks; railroad hand-cars; capstan or windlass on ships; moving buildings by horse-power, etc.

3. The skid or plank used by teamsters in loading wagons
   a) Groups of pupils demonstrate by using a board 3 or 4 feet long. If this is inclined and a toy cart is loaded and rolled up, or pulled up by spring balance, the relation between the length and height of the skid, the weight of the load, and the power needed to push it up are learned.

   Applications: loading wagons and cars; coal and ore cars pulled out of mines; wagons drawn up hills; gang planks in loading steamers, etc.

4. The pulley—another type of machine
   a) Pupils in groups experiment with pulleys and learn the advantages and disadvantages of each kind or combination of kinds.

   Problems are given to solve with pulleys, using the principles learned.

   Applications: hoisting heavy objects; raising sails on ships; moving buildings; clotheslines; derricks; dredges; wrecking-trains, etc.

5. Steam engines
   a) Teacher demonstrates the power of a small amount of steam by boiling a little water in a corked test tube.
   b) Steam power applied to running an engine. A toy engine is run to demonstrate its working, and pupils draw it and learn parts and principles.

6. Discussion of machines; advantages and disadvantages; types which sacrifice power in exchange for speed or vice versa, etc.

D. Friction
   1. Effects of friction
      a) Pupils do simple experiments showing that friction causes heat. Other effects—wearing of parts, hard to move, squeaking hinges, hot boxes on trains, etc.
      b) Ways of lessening friction.
      c) Advantages and disadvantages of friction.

E. Pendulums

1. What is a pendulum?

a) Groups of pupils demonstrate, by using pendulums of different lengths, the relation between the length of pendulum and number of swings; the length of the swing of a pendulum and the number of swings; the use of different substances for bobs; the length a pendulum must be to vibrate once a second.

How may a pendulum clock be regulated so as to go faster or slower?

Applications and history of the pendulum.

F. Some simple lessons on matter

1. Definition of matter

a) Pupils try to pour water through a funnel-tube in the stopper of an air-tight bottle.

b) They displace air from one bottle by pouring in water through a funnel-tube and collecting this air in another bottle over water.

c) They push an inverted tumbler down into water and note whether water enters the tumbler.

d) Does air take up space? Is it matter?

e) They drop a stone into a glass even full of water.

f) Do water and stones take up space? Are they matter?

g) Definitions (drawn from the pupils). Matter is anything which occupies space. No two things can occupy the same space at the same time.

2. Solids, liquids, gases

a) Pupils name and classify different forms of matter about them.

b) Pupils learn the difference between solids, liquids, and gases by noting some of their different characteristics.

3. Some changes in matter—physical and chemical.

a) Pupils dissolve some salt in water, and heat a few drops of the clear water in a spoon or dish. Can the salt be regained? Where was it when dissolved?

b) They dissolve zinc in acid and evaporate a few drops. Is zinc regained?

c. The change in (*a*) is called physical; in (*b*) chemical.

Applications: Explain each kind of change in melting ice; burning stick; freezing water; rusting iron; souring milk; breaking stick; burning a building; digesting food; etc.

4. How crystals are made

a) Pupils dissolve alum and potassium bichromate in hot water in separate dishes and suspend a string or wire in each solution for a few hours until crystals form. Examine them.

b) How does ice look when first forming?

c) Formation of crystals in nature in rocks and minerals.

Application of crystal forming: making rock candy; separating pure substances from impure; making medicines and chemicals.

5. The force that holds matter to the earth

a) Pupils do simple experiments to illustrate the effect of gravity.

b) Can gravity be measured? Pupils learn that it can be by weighing things.

c) Where is the center of gravity of a body, the point at which it may be balanced? Pupils find this point in an irregular piece of cardboard.

d) Pupils learn by simple experiments the relation between this center of gravity and the stability of a body.

Applications: To walking; load of hay and load of stones; comparative ease in tipping over; ink bottle with large base, etc.

G. A study of the atmosphere

1. What is atmosphere?

a) Pupils learn by experiments that the air has resistance, and that this is a factor in birds' flying and the flying of airships.

b) Other experiments show that air can be compressed and resists compression, and the principle is used in many ways.

c) The elasticity of air is learned by the use of the popgun, bicycle pump, air gun, balloon, football, air cushion, etc.

d) Another series of experiments illustrates the pressure of air, and applications are made to the drinking of lemonade through a straw, to barometers, to pumps, to siphons, to breathing, etc.

e) The barometer and its relation to the weather, pumps and how they work, and siphons are studied by means of simple apparatus.

2. Oxygen and nitrogen, which were studied under combustion or burning, are reviewed

a) Carbon dioxide, another gas of the atmosphere. Pupils make it by putting acid on marble, collect it and experiment with it to show its effects on a flame and on limewater.

b) The carbon dioxide from the lungs is shown by breathing or blowing into lime water.

Applications of CO_2: plant life; refrigeration; fire extinguishers; bread-making; liquors; ventilation.

H. The making of other gases

1. Coal gas

a) Pupils fill the bowl of a clay pipe with soft coal, seal it up with plaster of Paris and heat it. The gas given off is lighted.

b) By-products obtained in making coal gas: ammonia, coal tar, and coke. (Ammonia is not detected in this experiment.)

2. Gas from wood
   a) Pupils seal up chips or shavings in a clay pipe as in (*a*) and heat. Gas given off is lighted.
   b) By-products: charcoal, an acid (tested with blue litmus paper), and a tarry substance. From the last wood alcohol is made commercially.

I. Some lessons about water
   1. Water pressure
      a) By easy experiments with home-made apparatus pupils learn that pressure increases with the depth of the water.
      Application to deep diving and its effect on the ear drum.
      b) The fact that water has a pressure in all directions and that this pressure is equal in all directions is simply demonstrated.
      c) Water maintaining a level is shown by connecting lamp chimneys or glass tubes with rubber tubes, pouring water into one of them and noting effect.
      Application to water gauges on boilers, coffee and milk urns, city water supply from reservoirs and artesian wells.
   2. Buoyancy of water
      a) Pupils put several floating bodies in water and infer causes of floating, with the help of questions.
      Does the same principle apply to balloons in air?
      b) Pupils determine whether water pushes up on stones or other heavy objects by weighing in the air and again when suspended in water.
      c) Name of this upward push of water—buoyancy.
      Application: a bucket of water when in the water in the well and when lifted out; a heavy stone lifted under water; ships floating; swimming, etc.
   3. What determines how far down in water a stick, a piece of soap, a cork, or paraffin will sink?
      a) Pupils weigh a stick, let it float in a graduated tube, taking the reading of the level of the water before and after the stick is put in. They learn from class discussion that the stick sinks until it pushes aside an amount of water equal to its own weight.
      How much water is displaced by a swimmer floating?
      Why does a fresh egg sink in plain water and float in salt water?
      Why do iron ships float? Experiments and principles learned in (*a*) explain it.
      Will a ship displace a greater or less volume of salt water than fresh water? In which will it sink the deeper?

J. Lessons in sound
   1. Cause and nature of sound—vibration.
      a) Pupils sound a tuning fork and hold a suspended pith ball against it.
      b) They strike a bell or gong and hold a suspended pith ball against it.

c) They touch a vibrating tuning fork to the rim of a glass.
d) They touch the surface of water with vibrating fork.
e) They place a dish of water on edge of table and rap other end of table. Result? Cause?
f) They place fingers on throat and speak loudly. Do the vocal cords seem to vibrate?
g) Discussion on how vibrating bodies cause the sensation of hearing.

2. Transmission of sound
a) Teacher suspends a toy bell on a wire in a corked flask. Sound it. Put water in, boil it, cork up while steam is coming out. When steam inside is condensed sound bell again. Can it be heard?
b) Pupils place ear at end of a long stick, log, or iron bar and have some one scratch other end with a nail or pin. Can the scratching be heard?
c) Sound in water. When in bathing and under water strike two stones together. Is the sound louder than in air?
d) Sound, then, is transmitted by a wave motion of matter, such as a gas, a liquid, or a solid.
Discussion as to how waves are sent out or propagated.
e) Simple telephone, made with tin cans and string, illustrates wave motion.
f) Wave motion in iron shown by placing ear on railroad track while the track is struck a good distance away.
g) Velocity of sound as compared to the velocity of light.

3. Echoes—their cause

4. Speech and the phonograph. Simple explanation

5. Pitch. Nature of pitch
a) Pupils illustrate by tying string to desk and pulling tighter while plucking it.
b) They shorten or lengthen the string and pluck it. Results?
c) They try different sized strings but of same length. Does pitch vary with length, tension, and size of string?
Application: violins and other stringed instruments.

K. Lessons on light
1. What is light?
a) How do we see objects? Discussion with simple explanations.
b) Pupils find the direction in which light waves or rays travel by making holes in three pieces of cardboard and standing the cardboards in a row so that the light from a candle shines through all the holes. Are the holes in a straight line?
c) Do waves or rays of light travel in straight lines when entering or leaving water? A coin is put in a dish of water and pupils stand just

far enough away so that the coin cannot be seen over the edge of the dish. Why does the coin appear to view when water is poured into the dish?

d) Fish in ponds appear nearer the surface than they really are. Why?

e) An oar or pencil in water appears bent or broken. Why?

f) Transparent, translucent, and opaque bodies are defined.

2. Lenses

a) Pupils try a burning glass in the sunlight. What causes it to burn? Of what shape is it?

b) They try a concave lens. Why is the effect different?

c) Lenses in cameras, opera glasses, our eyes, are briefly explained.

d) Photography.

(1) Pinhole camera. If there is time pupils make cameras and take pictures.

(2) Lens camera. How pictures are taken, developed, and printed.

3. Color. Why an object is red, green, etc., is simply explained.

4. The rainbow. When can it be seen? What causes it?

Time allotment.—Two sixty-minute periods per week are given to this work throughout the year. The major part of the time is used for experimentation and construction, and the rest for discussion, reference reading, and the preparation of records for the notebooks. The pupils do considerable optional after-school or home work in connection with the experimentation.

Textbooks.—No textbook is used, but pupils are referred to library books and to periodicals for information on many of the topics.

References, mainly for teachers' use.—

Avery-Sinnot, *First Lessons in Physical Science for Grammar Grades.*
Higgins, *First Science Book; Lessons in Physics.*
Harrington, *Physics for Grammar Schools.*
Holden, *The Sciences.*
Bertha Clark, *General Science.*
Rowell, *Elementary General Science*, Book I.
Hessler, *The First Year of Science.*
Woodhull, *Home-made Apparatus.*
Magazines: *Popular Mechanics, Popular Electricity, Popular Science Monthly, What to Do, American Boy, Scientific American.*
Many high-school textbooks in physics and chemistry.

THE PEDAGOGICAL STATUS OF THE FEEBLE-MINDED SCHOOL CHILDREN[1]

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A recent American writer states that he has found feeble-minded children in the high schools of a large American city. Another American writer has asserted that "the morons are generally found sitting in the fourth, fifth, and sixth grades." Of one hundred offenders classified by another American writer as feeble-minded, 7 per cent had reached the eighth, 9 per cent the seventh, 11 per cent the sixth, 23 per cent the fifth, and 14 per cent the fourth, grade. In other words, the majority, or 64 per cent, were registered in Grades IV to VIII. In an investigation[2] made a few years ago we found that pupils assigned to the special classes for mental defectives in this country were sometimes doing work in the fourth, fifth, and sixth grades. In 1914, 17.6 per cent of pupils registered in the special classes included in the report were doing work above the fourth grade, while 25.3 per cent were doing work in the third and fourth grades. At the same time we found that 20.9 per cent of the pupils confined in state schools for the feeble-minded throughout the country were doing work in the third and fourth grades, and 5.8 per cent in grades above the fourth.[3]

On the other hand, Tredgold, of England, an international authority on the feeble-minded, found that not a single one of the brightest pupils of an average age of twelve years enrolled in a "typical special day school under the London County Council" came up to "normal Standard II," although in "occupational and manual work" they were "decidedly better." Mrs. Hume Pinsent, the founder of the famous Birmingham After-Care Committee, states that it is "quite exceptional" for any children who are

[1] Presented before Section L, Education, American Association for the Advancement of Science, December, 1917.

[2] *Problems of Subnormality* (1917), pp. 86–94.

[3] *Ibid.*, p. 34.

retained in the special schools of Birmingham to "reach a higher educational position than that attained in Standard II. This means that at sixteen the best of them will be able to read and calculate to about the same extent as a normal child of eight or nine. The numbers who attain to Standard II are variously stated by witnesses as from 40 to 58 per cent, at best only about half of the total number." It should be borne in mind that the English special schools are expressly limited by statutory provision to the reception of "feeble-minded" children,[1] who must have been so certified by the examiners. Binet and Simon assert that only half of the mental defectives in France reach the first-year intermediate course, corresponding to ages nine and ten.

The foregoing facts seem to indicate that there is a wide discrepancy between American and British and French standards of the possible pedagogical attainments of feeble-minded children. In England the brightest among the mental defectives do not go beyond the second standard. In America, on the other hand, we are told that they are found as a rule in the fourth, fifth, and sixth grades, and that they are sometimes found in the high schools, while we find in practice that pupils who do work from the third to the fifth or sixth grade are sent to the day classes for the "defective" or feeble-minded, and are also permanently confined in colonies for the feeble-minded. It must be conceded, of course, that it is entirely possible, in schools where the system prevails of promoting pupils automatically who have failed twice in the same grade, that the feeble-minded may get into high school, and even that imbeciles may go through both high school and college if they are sufficiently long-lived and persevere long enough, but it is highly improbable that this happens as a matter of fact. The evidence that has been offered that this does happen is quite inconclusive, for the pupils who have been called feeble-minded have been so diagnosed on the basis of the XII-year standard of the 1908 or 1911 Binet-Simon scale, or on the basis of an arbitrary quantitative standard of mental retardation. On the basis of exactly the same

[1] It seems quite evident that the English term "feeble-minded" is not equivalent to the American term "moron," when the latter term is applied to Binet-Simon mentalities of X to XII.

standards we found some time ago every one of a group of eminently successful adults and at least four of a group of six successful high- and normal-school students to be morons.[1] Since pupils who do work in the intermediate grades and sometimes even in higher grades are being assigned throughout the country to classes for mental defectives, it is well to consider whether our standards of mental deficiency have not been set too high,[2] for we regard it as inadvisable both on social and pedagogical grounds to assign backward children to special classes for the feeble-minded instead of to ungraded classes for the backward; and certainly backward children should not be committed as "defectives" to state colonies, as now sometimes happens.

For several years we have been gathering pedagogical data on pupils who have been attending special classes for mental defectives, and retarded pupils whom we have clinically examined.[3] We propose here merely to present some data bearing on the pedagogical status of children whom we have diagnosed as feeble-minded in the psycho-educational clinic of the department of instruction of the city of St. Louis. We make no pretention to infallibility in the diagnosis of these children. Because we have tried to be conservative in our diagnosis, giving the pupil the benefit of the doubt, it is probable that some of the children who have been diagnosed as border-line and very backward will eventually prove to be feeble-minded. But it is also probable that some of the cases diagnosed as high-grade feeble-minded will eventually prove by their ability to lead an independent existence, which, ultimately, is the one crucial test of feeble-mindedness, that they are border-line or backward. Before making the diagnosis, however, we made a fairly intensive study of each case, from the standpoint of the child's family and personal history, pedagogical record, and physical and mental condition. The time given to the study of each case by

[1] *Problems of Subnormality* (1917), pp. 221 f. See also *Journal of Criminal Law and Criminology*, January, May, and July, 1916.

[2] No one had conclusively demonstrated the legitimacy of the standards at the time they were proposed; they were accepted ex cathedra.

[3] We have already partly analyzed some of the data from the St. Louis Special School pupils. See *Problems of Subnormality* (1917), pp. 87–91.

the different persons who have co-operated probably averages at least four hours.

The data bearing on the child's pedagogical status have been secured from two sources: First, from the report made by the principal and teachers (on our Form 13-A) of the elementary school in which the child was enrolled at the time he was reported to the clinic for examination. This report indicated the grade (and frequently the quarter) in which the child was registered. Secondly, from the report made by the teachers (on our Form 13-G) in the special school to which the child was assigned. The second of these reports is made to the clinic one month after the child is admitted. Thereafter a report is filed at the end of each school year. These reports are quite elaborate and contain, among other matters, a statement of the grade in which the child is able to function in the different branches of instruction offered in the special schools. This information, however, is not always supplied by the teachers, because they are unable to grade the child very accurately. Most of the teachers feel that they can grade most accurately in reading and arithmetic, and the grading is most frequently supplied in these branches. From the special schools we shall utilize only the grades in reading and arithmetic submitted at the end of the child's first year in the special school.[1] The estimates from the special schools will serve as a valuable check on the accuracy of the classification reported from the elementary schools. The special-school estimates, of course, indicate more nearly the child's actual pedagogical status, for two reasons: first, because the special-school teachers have had time to make a much more thorough study of the child than did the regular grade teachers; and secondly, because the pupils may have been advanced beyond their actual capacity in the elementary schools. It would be desirable to check further the grading of both the elementary- and the special-school teachers by standardized educational tests. While we have given

[1] It did not seem advisable to use the grades reported at the end of the child's first month in school, because the teachers were less certain of the classification at that time and the grades were less frequently reported. Frequently the grades reported at the end of the first month and at the end of the first year were identical. In most instances in which the classifications were different the later grade was higher.

such tests to some of the pupils as a part of our clinical examination, we have been unable, because of lack of time, to do the work systematically enough to justify us in using these standardized results for the purpose of this study. Judged by the results of the tests we have given, the estimates of most of the special-school teachers have a considerable degree of accuracy.[1]

The chief difficulty encountered in making this study was the lack of data on many cases. Out of a block of 379 consecutive feeble-minded cases we were obliged to reject 93 because the pedagogical record was not reported. This includes all the idiots, fully half of the imbeciles, and some of the higher grades. Many of the children who had to be rejected from the tabulation had never been in school. We have not used the record of anyone with a B.-S. (Binet-Simon) mentality of less than V years. It is evident that our results apply to the higher grades of the feeble-minded whom we have examined. Of the 286 cases which we have utilized, the grade was supplied from the elementary schools for 246, and from the special schools for 133 in reading and 100 in arithmetic. Eighty-two of the children were classified as imbeciles, and 204 as morons[2] varying in B.-S. mentalities from V to X years (Table I). Thirty

TABLE I

DIAGNOSIS OF THE 286 SUBJECTS INCLUDED IN THE TABLES

B.-S. AGE	IMBECILES			MORONS			IMBECILES AND MORONS		
	Boys	Girls	Both	Boys	Girls	Both	Boys	Girls	Both
V	17	19	36	6*	.....	6	23	19	42
VI	18	15	33	4*	3*	7	22	18	40
VII	5	8	13	47*	16*	63	52	24	76
VIII	.....	.....	.....	47	40	87	47	40	87
IX	.....	.....	.....	22	8	30	22	8	30
X	.....	.....	.....	7	4	11	7	4	11

* Potential morons.

[1] Since the above was written we have surveyed the pupils in our special schools by the following standardized tests: The Ayres and Starch spelling tests, the Gray oral-reading tests, and the "Arithmetic exercises" previously used in the Cleveland and St. Louis schools.

[2] The average amount of intelligence retardation, the average intelligence quotients, and distribution of intelligence quotients of one block of our feeble-minded cases may be found in *Problems of Subnormality* (1917), pp. 178–80.

had a B.-S. mentality of IX, and eleven of X. The average number of years in school for the pupils varied from 1.6 to 5.9 in each B.-S. age (see Table II). We can here present only the principal results of the investigation.[1]

TABLE II

AVERAGE NUMBER OF YEARS IN SCHOOL*

B.-S. AGES	BOYS		GIRLS		BOTH	
	Number	Average	Number	Average	Number	Average
V.....	15	1.6	17	1.5	32	1.6
VI.....	15	3.6	16	2.8	31	3.3
VII.....	39	4.3	14	4.1	53	4.2
VIII.....	31	5.6	25	5.4	56	5.5
IX.....	13	5.9	.....	.....	13	5.9

* The "years in school" include the months spent in the special school up to the time the first annual report was made. In some cases the data were very accurately supplied in years and months, while in other cases they were inadequately supplied or not at all.

In the elementary schools the grade classification was as shown in Table III, the percentages being based on the 246 pupils for

TABLE III

GRADES	BOYS		GIRLS		BOTH	
	Number	Percentage*	Number	Percentage*	Number	Percentage
Kindergarten	4	2.5	4	4.4	8	3.2
I.....	78	49.6	46	51.6	124	50.4
II.....	46	29.3	20	22.4	66	26.8
III.....	15	9.5	12	13.4	27	10.9
IV.....	10	6.3	5	5.6	15	6.0
V.....	2	1.2	2	2.2	4	1.6
VI.....	1	0.6	.....	.....	1	.4
VII.....	1	0.6	.....	.....	1	.4

* The percentages in all the tabulations are based upon the number of pupils for whom the grades were reported. No very consistent sex differences appear in the different tabulations.

whom the grades were reported: 80.4 per cent were enrolled in the kindergarten and the first two grades, 10.9 per cent were in the third grade, while only 8.4 per cent were in a grade above the third.

[1] We have tabulated the distribution of the pedagogical grades for the pupils classified in each B.-S. age. The writer will be glad to lend the tables to anyone who may wish to consult them. We hope to publish them in the *Annual Report of the Board of Education of the City of St. Louis* for 1917 and 1918. An examination of the tables shows that a knowledge of a child's B.-S. age need not disclose anything definite with regard

This includes fifteen pupils in Grade IV, four in Grade V, and one each in Grades VI and VII. All of these twenty-one pupils had B.-S. ages from VIII to X. On the other hand, in reading in the special schools 86.4 per cent of the 133 pupils reported were doing from sub-kindergarten to second-grade work, 9.7 per cent did third-grade work, and 3.7 per cent, or five pupils, did fourth-grade work, as given in Table IV. Of the five doing fourth-grade work, one

TABLE IV

Grades	Boys		Girls		Both	
	Number	Percentage	Number	Percentage	Number	Percentage
Kindergarten	8	9.3	4	8.3	12	9.0
I.....	55	64.7	25	52.0	80	60.0
II.....	11	12.9	12	25.0	23	17.2
III.....	7	8.2	6	12.5	13	9.7
IV.....	4	4.7	1	2.0	5	3.7

measured VIII years by the B.-S. scale, three IX, and one X. In arithmetic 88 per cent of the 100 pupils whose grade was reported from the special schools did from sub-kindergarten to second-grade work, 11 per cent did third-grade work, no one did fourth-grade work, and one who graded X by the B.-S. scale was reported as doing sixth-grade work, as shown by the tabulation given in Table V.

Among 124 pupils whose grades can be compared in the elementary and special schools, forty-seven were given the same classification, forty-five were given a lower classification, and twelve a higher classification in the special schools. Twelve were given a lower classification in one branch (reading or arithmetic) and the

to his pedagogical attainments. E.g., in special schools the VIII-year-olds (B.-S.) varied from Grade I to Grade IV in reading, and from Grade I to Grade III in arithmetic; in age IX they varied from I to IV in reading, and from II to III in arithmetic; and in age X from I to IV in reading, and from I to VI in arithmetic. That the pedagogical status and the B.-S. age do not coincide is evidently due to differences in the chronological ages of the pupils, differences in amount of schooling, differences in learning aptitude (which no doubt varies in general, but not absolutely, with the degree of intelligence), and specific pedagogical talents and defects. One child with a B.-S. age of X (8.8 by the 1911) did only first-grade work both in the elementary and in the special school.

same classification in the other branch, seven were given the same classification in one branch and a higher classification in the other, and one was given a lower classification in one branch and a higher one in the other in the special school than the grade assigned in the elementary school.

TABLE V

Grades	Boys		Girls		Both	
	Number	Percentage	Number	Percentage	Number	Percentage
Kindergarten	7	11.4	3	7.7	10	10.0
I.....	31	50.8	24	61.5	55	55.0
II.....	14	22.9	9	23.0	23	23.0
III.....	8	13.1	3	7.6	11	11.0
VI.....	1	1.6	.....	.....	1	1.0

The foregoing figures show that the pupils were classified slightly higher in the elementary schools than in the special schools, although they had received varying amounts of additional individual instruction in the special schools. The number classified above the third grade in the elementary schools exceeded by 4.7 per cent and 7.4 per cent, respectively, the number rated as doing work above the third grade in reading and in arithmetic in the special schools. The number classified above the second grade in the elementary schools was 6 per cent higher than the number doing work above the second grade in reading, and 7.5 per cent higher than the number doing work above the second grade in arithmetic in the special schools. These differences are comparatively small in view of the claim made that the morons as a rule are found in the fourth, fifth, and sixth grades. Not quite one-fifth of our tabulated feeble-minded cases were classified above the second grade and only 8.4 per cent above the third grade even in the elementary schools.

Examination of the clinical records of the twenty-one pupils who were in the fourth grade or higher in the elementary schools reveals the following facts:

The pupil who was in the seventh grade had been in school ten and one-half years and at the age of sixteen was retarded mentally 5.8 years by the B.-S. scale (or 6.6 by the 1911 Vineland version). In the special schools he did sixth-grade work in arithmetic and

fourth-grade work in reading. He was subject to epileptic seizures. He had been deteriorating for some time, and was diagnosed as feeble-minded on the basis of the prognosis. The sixth-grade boy was reported for examination immediately on entering the public schools at the age of fourteen from a Catholic school where he had attended for eight years. The public school estimated that he was backward at least four or five years in his school work. He graded 5.6 years backward by the B.-S. scale (6.2 by the 1911) and presented pronounced signs of *dementia praecox*. Of the fifth-grade pupils one had received little or no schooling in Arkansas. She entered our schools at eleven, and after five and a half years in school was unable to do the work of the fifth grade. Although at the age of 16.7 she was retarded 7.3 years by the B.-S. scale, the evidence, after all, is not conclusive that she is feeble-minded. She conducts herself quite intelligently in many ways. One was retarded by the B.-S. scale 5.8 years (or 6 by the 1911) at the age of fifteen. She had been in a school which had been very negligent in reporting pupils for examination, and on entering the fifth grade in another school on a transfer card was found to be unable to do the work. One boy who had been advanced to the fifth grade was said to do only fourth-grade work. At the age of fourteen he was retarded by the B.-S. scale 4.2 years. There is some doubt about his being feeble-minded. One graded 6.1 years short by the B.-S. scale at the age of 15.9. He was a neurotic type who used to have hysterical outbreaks. His greatest capacities were in writing and music. He is expected to finish the sixth grade in music in a private conservatory next June. He does not quite present the syndrome of a feeble-minded child.

Of the fifteen pupils in the fourth grade in the elementary school, one was said to do only second-grade work. Of the ten who went to the special schools, nine did less than fourth-grade work and one did fourth-grade work only in reading. At the age of 11.8 she was retarded 3.8 years by the B.-S. scale (4.6 by the 1911), and showed signs of *predementia praecox*. She was probably dementing. One did almost fourth-grade work in arithmetic. At the age of 15.4 he was retarded by the B.-S. scale 7 years (7.6 by the 1911). He manifested psychotic trends, and might have been a case of

psychotic deterioration rather than feeble-minded, in spite of his great amount of retardation. In reading, one did first-grade work, two second-grade work, and five third-grade work. In arithmetic, three did first-grade work, one second-grade work, and five third-grade work. One who at the age of 13.3 was retarded 4.1 years by the B.-S. scale (4.9 by the 1911) was pretubercular, and may have been mentally enfeebled rather than feeble-minded. Our information respecting the three remaining cases, retarded mentally from 4.5 to 5.5 years, does not enable us to judge of the school work which they were actually able to do.

It is apparent from the foregoing analysis, therefore, that the large majority of those who were classified in the fourth, fifth, and sixth grades in the elementary schools either did not actually do work beyond the second or third grade, or they presented such complications that it would be unsafe to affirm dogmatically on the basis of arbitrary intelligence ratings (B.-S.) that they were feeble-minded. In fact, we do not seem to have found any considerable number of feeble-minded school children who are able to do third grade work successfully, except possibly in one or two branches. The possible pedagogical attainments of the majority of them have varied from decidedly less than kindergarten standard to second-grade standard. The corollary from our results is that retarded pupils who have the potentiality of doing work beyond the third grade, possibly the majority who have the ability to do third-grade work, should be assigned to ungraded classes for the border-line and backward rather than to special classes for the feeble-minded whenever it is possible to organize both types of classes. We realize that our pedagogical data are not entirely satisfactory, and that the grade standards vary throughout the country, and our conclusions are offered with due reservations.

SOME JUNIOR HIGH SCHOOL FACTS DRAWN FROM TWO YEARS OF THE SIX-SIX PLAN AT MACOMB, ILLINOIS

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Superintendent of Schools, Macomb, Illinois

Introductory.—The present organization of the Macomb public schools on the six-six plan was adopted in November, 1915. At that time a new high- and grade-school building was ready for occupancy. The new building displaced a ward school which had housed Grades I to VI. Of the three other public-school buildings in Macomb, one had housed Grades I to IV and the four-year high school; the remaining two, Grades I to VIII. During the first two months of the school year of 1915–16, the eight-four plan continued. When the new high- and grade-school building was occupied, November 1, Grades I to V and VII to XII were placed in it; the sixth grade of that ward was divided between two adjacent schools. This consolidation of the two seventh and the two eighth grades with the high school left Grades I to VI in two of the grade buildings, and Grades I to IV in the third.

Elementary-school adjustments.—The removal of Grades VII to XII from the old buildings permitted a number of advantageous adjustments in the elementary schools. The vacated high-school assembly room was provided with a large platform three feet high for use of the elementary schools for auditorium activities Friday afternoons. Before reorganization, because of a lack of teachers and classrooms, a number of teachers had been compelled to teach three half-grades. After reorganization, classrooms were available, and somewhat later additional teachers were secured and pupils were so redistributed that the three elementary schools each contained Grades I to VI with but two half-grades to a room. Grades IV to VI were reorganized upon the departmental plan. The fifth grade was later removed from the new high-school build-

ing. It is likely that a new elementary school will be built in the neighborhood of the new high-school building so that the new building can then be used exclusively for secondary education.

Junior high school teachers and courses.—At the beginning of the school year the teachers placed in charge of the two seventh and the two eighth grades were those who had been selected for the junior high school. The two eighth-grade teachers were ward principals of more than twenty years' experience each. The principal of the six-year ward school, a teacher of fifteen years' experience, was placed in charge of one of the seventh grades. The other seventh grade was placed in the charge of a teacher who had but one year's experience in addition to her student teaching in the normal school, but she had made special preparation for the teaching of English. These four teachers brought their pupils into the new high school at the close of the first two months of the year. The teacher with special interest in English was given that work. It included reading, literature, spelling, grammar, and oral and written composition. The arithmetic was given to the principal most interested in that subject. This subject was so reorganized that after a time it was possible to devote the latter half of the eighth year to algebra, for which ninth-grade credit was given. To the principal most interested in history was assigned United States history and hygiene for the seventh grade, and United States history and community civics for the eighth. The third principal preferred science and was given geography for the seventh grade and general science for the eighth. The latter was so reorganized that it was allowed ninth-grade credit. The work of these four teachers was confined to Grades VII and VIII. Subsequently teachers with a degree shared this work, taught in higher grades at the same time, and thereby unified the six-year high school.

The junior pupils organized.—These newly inducted pupils were given seats in the assembly room with the other high-school students. Before the consolidation took place several joint meetings of the seventh and eighth grades with the high school were held to perfect the organization of a "Students Building Protectors' Association," which had for its aim the care of the new building. This joint activity prepared both groups somewhat for the

consolidation. Each of the high-school grades had elected a "class advisor" from the faculty. This advisor was to look after the interests of his group in a special way. The seventh and eighth grades each elected such advisors as soon as they had joined the high school. The pupils of Grades VII to IX were organized into six literary societies. Those in Grades X to XII were organized into three. The six junior societies were divided into three pairs, each pair being linked to one of the senior societies as the one into which the members would go when they classed tenth grade. The purpose of this arrangement was to encourage the senior societies to take an interest in the kind of forensic material that was being prepared in the "protégé" societies of the junior school.

The age-grade situation.—Space cannot be taken to present the complete age-grade table for the twelve grades at the time of reorganization. The ages of the pupils in each of the half-grades IB, IA, IIB, etc., distributed themselves more and more widely as one proceeds from Grade I to Grades V, VI, and VII. In Grade VIA the ages of the pupils spread out over thirteen half-years. The critical period which the junior high school attempts to serve stands out clearly. The situation for the twelve grades is shown by Table I, which gives a summary of the age-grade table.

TABLE I

SUMMARY OF AGE-GRADE TABLE SHOWING AGE-GRADE SITUATION, SEPTEMBER, 1915

	Number of Pupils	Percentage
Under-age.....	126	12.3
Normal.....	235	22.9
Over-age.....	665	64.8
	1,026	100.0

Assuming that for every retarded pupil there should be an accelerated one, there would then be a one-to-one ratio between the percentage retarded and the percentage accelerated. Instead of such ratio Table I shows that it was somewhat worse than five to one.

Retardation in the junior-senior high school.—It is well known that from Grades V or VI on the correlation between retardation

and elimination is high. Elimination therefore operates to reduce the amount of retardation to be expected on the part of those remaining in the higher grades. In view of this fact a high percentage of retardation in those grades is significant in that, among other things, it indicates that the condition would be even worse if all the pupils had continued in school. The over-age percentages in each of the six highest grades for September, 1915, follow, and would seem certainly to be seriously high: in grade VIIB, 73.1 per cent; VIIA, 74.5 per cent; VIIIB, 83.7 per cent; VIIIA, 65.4 per cent; IX, 76.7 per cent; X, 72.4 per cent; XI, 63.4 per cent; XII, 69.0 per cent.

Further significance of over-ageness.—After pupils reach the eleventh or twelfth grade over-ageness is not a serious cause of elimination, because as a rule the pupils are likely to have acquired by this time a strong inclination to graduate. It is serious, however, from the standpoint of economy of time, as it is a decided handicap for pupils to be late in graduating if they plan to go on with their education in higher schools. But for pupils of Grades V to IX particularly acceleration will prove a means to a maximum amount of schooling. A twelve-year course for every child of normal mental capacity is the aim of the school. In order to realize this aim it is important that the pupils reach the eleventh grade or be close to it by the time they turn sixteen. The compulsory-attendance law in Illinois requires school attendance until the age of fourteen as the minimum. Between fourteen and sixteen attendance is compulsory unless the reasons for going to work are so compelling that the superintendent of schools is willing to issue a work permit. Those who are down in the sixth or seventh grade when they have reached the age at which most children are either in Grades X or XI or are out of school, are known to be the ones who press the official for a work permit. If refused the permit, they will continue in school under protest until they achieve the age of sixteen. Quite generally they leave school just as soon as they have reached that milestone of emancipation.

Adjusting the work to the children.—The school adopted the policy of bringing the children, as fast as possible, more nearly up to the grade corresponding to their ages. A few of the extremely

over-age pupils of Grades V and VI were promoted to the junior high school. The teaching force for Grades VII and VIII was not adequate to allow of many such special promotions. For the same reason it was not possible to organize special classes for those requiring a more elementary presentation of the subjects. It was possible, however, for a number of these over-age pupils from Grades V and VI to take fewer than the regular four courses because of the fact that promotion was by subjects. They were thus enabled to work to their full capacity and in a congenial atmosphere. The simplification of the elementary courses of study and the adoption by the teachers of a common standard of marking were other means to adjusting the work to the pupils.

Economy of time.—In addition to the methods indicated in the preceding paragraph, other means were employed for accelerating the progress of the pupils through the grades. The provision for ninth-grade credit for the science work in the eighth year, the beginning of algebra in the Grade VIIIA, and a system of weighted credits from the Grade VIIB on, all contributed to greater economy of time.

Retardation reduced in the twelve grades.—Without going into detail with reference to the ways and means employed by the school to correct this heavy retardation, Table II is presented to show the total improvement that took place in all twelve grades during the interval from September, 1915, to June, 1917. In June, 1917, as shown in Table II, the ratio of the percentage retarded to the

TABLE II

SHOWING THE AGE-GRADE SITUATION IN JUNE, 1917, AS COMPARED WITH SEPTEMBER, 1915

	Percentage in 1915	Percentage in 1917	Percentage Improvement
Under-age....	12.3	25.85	13.55
Normal.....	22.9	23.10	0.2
Over-age.....	64.8	51.05	13.75
	100.0	100.00	.....

percentage accelerated, instead of five to one as in 1915, was two to one. While this ratio is not wholly satisfactory, it is to be

expected that time will be required fully to remedy this situation. The difficulty was increased by the fact that the school had scarcely made a beginning in the way of differentiated curricula. Were individual differences more completely provided for by varied types of courses, the rate of progress through the higher grades could then be expected to become more nearly normal.

The development of enrolment.—Table III shows the development of the enrolment in each grade for the five-year period 1913–17 inclusive. The "percentage increase" column shows the percentage increase in total enrolment each year over the preceding year. Table III supplies the data about which centers the discussion in several of the succeeding paragraphs.

TABLE III

SHOWING THE DEVELOPMENT OF THE ENROLMENT BY GRADES FOR THE FIVE-YEAR PERIOD 1913–17 INCLUSIVE

YEAR	GRADES													PERCENTAGE INCREASE
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	All	
1913..	140	123	123	131	111	103	83	45	49	39	25	23	995	1.6
1914..	166	113	122	129	110	105	82	54	76	26	27	27	1,037	4.2
1915..	166	113	122	129	110	105	82	61	78	27	27	25	1,038	0.009
1916..	158	89	138	135	119	109	81	86	98	32	42	29	1,116	7.5
1917..	160	134	104	111	123	111	123	77	103	57	30	39	1,172	5.0

When a school year is referred to by a single date, 1913, 1914, and so on, as in Table III, it is to be understood to mean the school year ending in June of the given date.

Distribution of the pupils in the several grades.—What percentage of the total enrolment should be found in each of the grades if the school were 100 per cent efficient in holding the pupils? As Dr. Ayres has pointed out,[1] we cannot expect an equal number in each grade, first, because of the factor of death; secondly, because of the increase of population, which would mean that there are more seven-year-old children in the country than fourteen-year-old, and therefore the lower grades would be larger; and thirdly, there is the very important factor of retardation and elimination. The figures given by Dr. Ayres showing the number of pupils to be

[1] L. P. Ayres, *Laggards in Our Schools*, p. 103.

expected in each of the first eight grades as schools are now conducted furnish a standard by which to measure the holding power

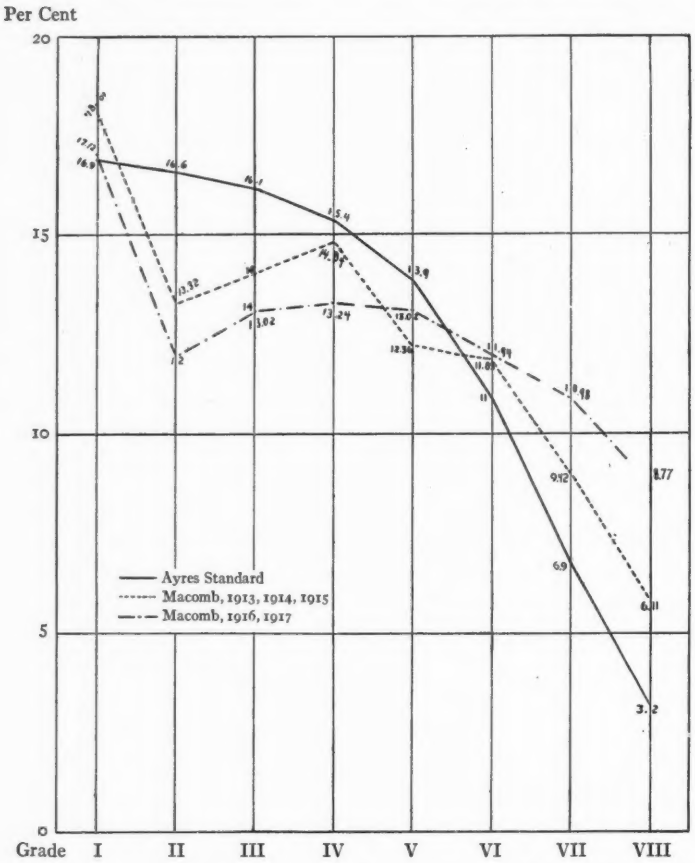

CHART I.—Showing percentage of the total enrolment of Grades I–VIII found in each of the grades, comparing the three-year period prior to reorganization with the two-year period following, and these with the Ayres Standard.

of the school in Grades VII and VIII. It would be useful if we had a similar standard for the four upper grades also. Chart I

has been prepared to show the percentage of the pupils expected in each grade by the Ayres standard, and the corresponding percentages in the Macomb schools for the three-year period prior to reorganization and for the two-year period following. The percentages were computed by finding what percentage of the entire eight grades were in each of the grades. The percentages for the Ayres curve were computed in the same manner. The Macomb curves in Chart I show that despite the heavy retardation the congestion in the lower grades is less, and that the children in Grades VI, VII, and VIII are held in school more effectively than in the city systems upon which Dr. Ayres based his hypothetical table. It is interesting to note that the Macomb curves cross the Ayres curve between Grades I and II and again between Grades V and VI. The excessive percentages in Grade I show the need of kindergartens in Macomb. A good many children develop too slowly to be ready for Grade II at the end of their first year. A preliminary kindergarten training would prevent much of this first-grade retardation.

Comparison of the two Macomb curves with one another shows an increased holding power of the school and a reduction of the congestion in the primary grades following reorganization. These results are some of the outcomes of the policy of adjusting the work to the children, as outlined in an earlier paragraph.

What ratio should be expected between the total enrolment for the upper six grades and the lower six? As pointed out above, were the school 100 per cent efficient in holding its students, one could not expect 50 per cent of the total enrolment to be found in the upper six years. What this ratio would be were there no elimination whatever is not known. It is possible, however, to show the trend in each of the grades for the five-year period. This is done in Chart II, which brings out clearly the tendency toward the better in the holding power of the school through the higher grades, particularly Grades VII to X inclusive. The sharply rising curves are those of the junior high school grades. It is apparent also that there is a decline in the percentages in Grades I to VI.

Chart II suggests the desirability of a comparison of the percentage of the total enrolment found in Grades I to VI with that

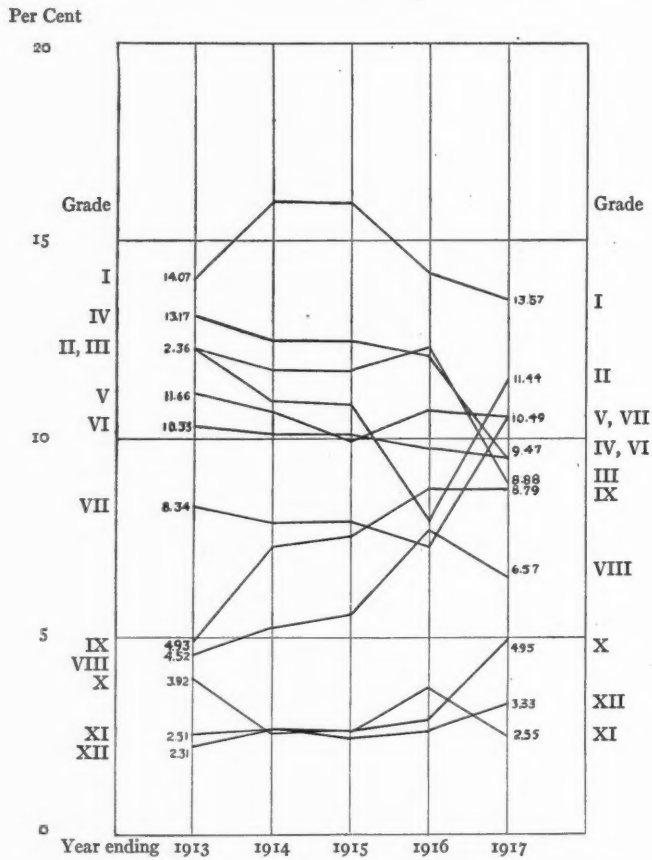

CHART II.—Showing percentage of the enrolment of Grades I–XII found in each of the grades for each of the years 1913, 1914, 1915, 1916, and 1917.

found in Grades VII to XII. This comparison is shown in Chart III. The percentage for the highest six grades has increased during the five years by 10.1 per cent, while that for the lowest six grades

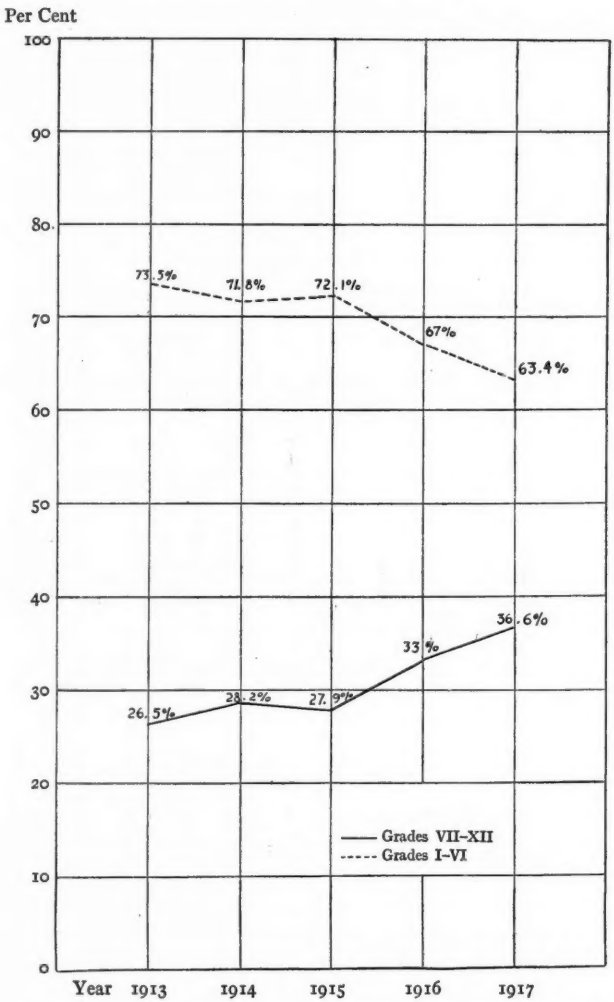

CHART III.—Showing percentage of all grades enrolled in the first six grades and in the last six for five-year period, 1913–17.

has decreased by an equal amount. The curves point clearly in the direction of a more equitable division of the enrolment between the elementary and the secondary school.

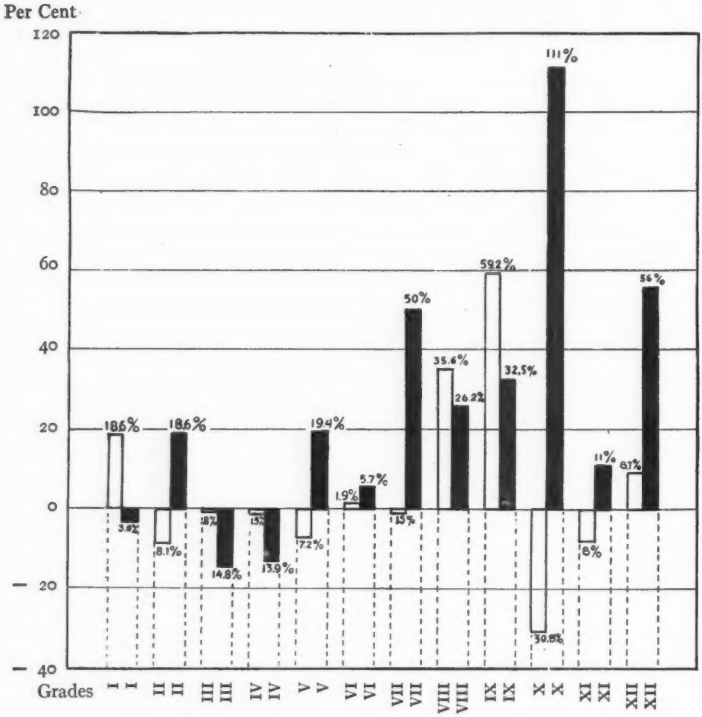

CHART IV.—Showing percentage increase or decrease for each grade during the three-year period prior to reorganization and the two-year period following. White columns represent percentage of increase or decrease during three-year period, 1913, 1914, 1915; solid columns, the two-year period, 1916–17.

Before and after reorganization.—The effect of the six-six organization is brought out clearly by a comparison of the enrolment percentages in each of the grades for the three-year period prior to reorganization and for the two-year period since. Charts IV and V furnish such comparison. The white, or empty, columns of

Chart IV show the percentage increase or decrease in enrolment for each grade for the three-year period prior to reorganization;

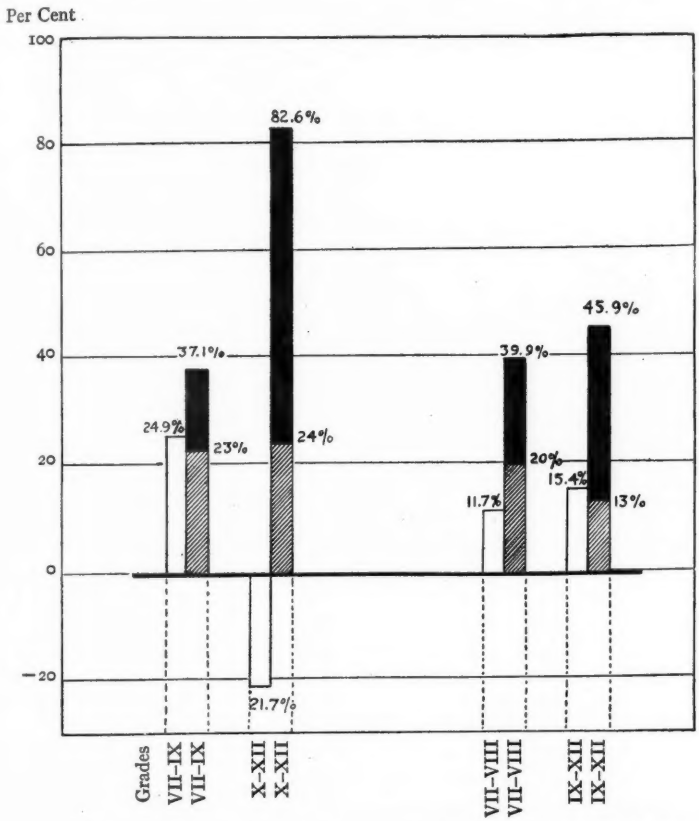

CHART V.—Showing percentage increase or decrease for grades VII–IX, X–XII, VII–VIII, and IX–XII for the three-year period prior to reorganization and the two-year period following; also comparison with other junior-senior high schools. White columns represent three-year period; shaded plus solid, two-year period; shaded, gain in other junior-senior schools.

the solid columns show the corresponding facts for the two-year period following. The static nature of the percentages for the

lower grades and the decided increases for the upper grades are prominent, particularly for the period following reorganization, as shown by the solid columns.

For purposes of comparison with other junior-senior high schools, some of which divide the six years into Grades VII–VIII and IX–XII, and others into VII–IX and X–XII, the upper six grades shown in Chart IV have been grouped in both these ways, and the percentages are shown in Chart V. The four columns at the left of the chart show for Grades VII to IX and Grades X to XII the percentages of increase or decrease before and after reorganization; the four columns at the right show the percentages in a corresponding manner with the six grades grouped VII–VIII and IX–XII. In both cases the pronounced gains in enrolment following reorganization as compared with the three years preceding are striking. The hatched portions of the columns show the percentages of increase in enrolment for seventeen schools following reorganization upon the six-three-three plan and for four schools which had reorganized upon the six-two-four plan as reported by Mr. Douglass.[1] The rather surprising extent to which the Macomb increases overreach those of the twenty-one other schools suggests two possible explanations. Mr. Douglass says that his figures were secured with difficulty and represent merely the average of a group of schools furnishing attendance figures. The length of time during which the schools had been under the new form of organization was not uniform. He says, ". . . . it is manifestly unfair to group together for this comparison schools recently organized and those that have been operating for a longer time." It is possible also that the Macomb increases have been due in no small degree to the attractions of a new high-school building.

Interpretation of the enrolment increases.—Chart VI has been prepared from the data of Table III and from figures obtained from the office of the Illinois state superintendent of public instruction. The Macomb curves show the development of the enrolment for all twelve grades, for Grades I to VI and for Grades VII to XII,

[1] Aubrey A. Douglass, *Fifteenth Yearbook of the National Society for the Study of Education*, Part III, p. 103.

over the five-year period 1913–17. The Illinois curves show the development of the enrolment in the state for the same grade groups for the four-year period 1913–16. The 1917 figures for the

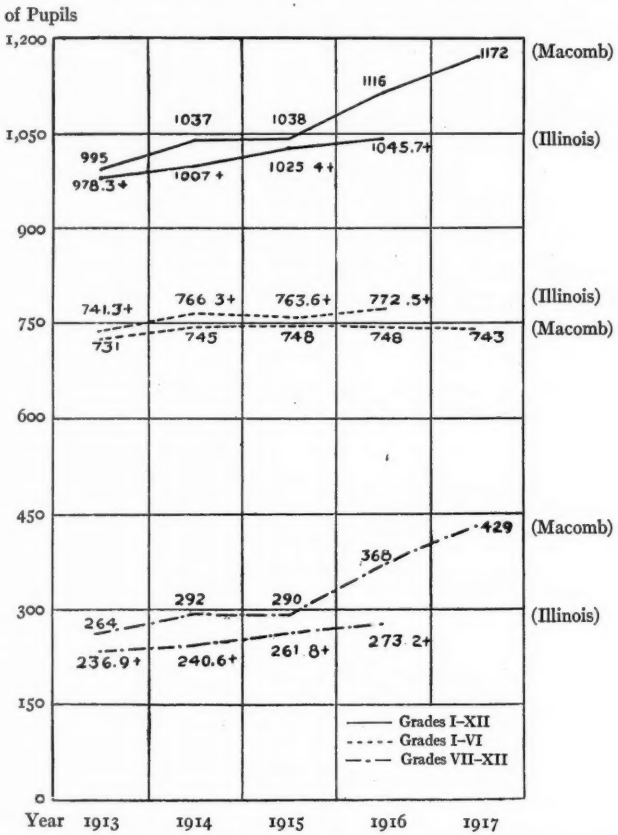

CHART VI.—Enrolment in Grades I–XII, I–VI, and VII–XII during five-year period for Macomb and Illinois.

state were not available in time for inclusion here. The Illinois enrolment figures were reduced by dividing by 1,000 to bring them to the same scale as the Macomb figures.

The purpose of Chart VI is to throw some light on the question whether the increased high-school enrolment throughout the country has been so pronounced that the Macomb increases may be regarded as a part of the general movement. If an affirmative answer be obtained, the Macomb increases cannot be attributed to the junior-senior high-school organization. The enrolment in all twelve grades for Macomb and Illinois is shown by the two upper lines of the chart. Both show increases from year to year, the Macomb curve mounting more rapidly than that for the state during the last two years, assuming the state curve to continue its general direction. The two lines about the middle of the chart show the development of the enrolment for the first six grades. Here the state has made more of an advance than has Macomb. The lower two curves compare the enrolment in the upper six grades for Macomb and the state, and here it is unmistakably plain that the Macomb increases have been considerably in excess of the general increases throughout the country as exemplified by the state. The increase from 290 in 1915 to 429 in 1917 for Macomb amounts to a gain of 48 per cent. The failure of the Macomb curve for the first six grades to keep pace with that of the state, together with the wide variation of the Macomb and state curves for the upper six grades, shows that the Macomb increases cannot be explained as merely a part of the general movement toward a high-school education.

Has the tuition enrolment mounted rapidly enough to give the explanation? Table IV gives a negative answer to this question.

TABLE IV

SHOWING THE DEVELOPMENT OF THE ENROLMENT, EXCLUSIVE OF ALL TUITION PUPILS, 1913–17

	Year				
	1913	1914	1915	1916	1917
Tuition	5	7	14	21	36
Non-tuition	259	285	276	347	393

While there has been some growth in the tuition enrolment, it has been too slight to furnish an adequate explanation.

All tuition pupils excluded, the enrolment in Grades VII to XII in 1915 was only 6.6 per cent greater than in 1913; it was greater by 29.5 per cent in 1917 than in 1915.

Attitude concerning further schooling.—A rapidly growing high school might be expected to promote a favorable attitude toward the school and the completion of at least a high-school education. The pupils of Grades VII to XII were asked whether they intended (1) to complete high school and (2) to take a college course. The tabulation of their replies is presented in Tables V and VI.

TABLE V

SHOWING BY GRADES WHETHER THE PUPILS INTEND TO COMPLETE THE HIGH SCHOOL

Grade	Percentage Replying "Yes"	Percentage Replying "No"	Percentage Replying "Don't Know"
VII	66	8	25
VIII	74	10	15
IX	76	5	18
X	79	12	8
XI	85	7	7
XII	97	0	2

TABLE VI

SHOWING WHAT PERCENTAGE OF EACH GRADE PLAN TO TAKE A COLLEGE COURSE

Grade	Percentage Replying "Yes"	Percentage Replying "No"	Percentage Replying "Don't Know"	Two-Year College	Two- or Four-Year Course
VII	22	36	41	.....	.....
VIII	16	31	52	.....	.....
IX	24	38	37	.....	.....
X	23	30	30	12	4
XI	34	37	29	.....	.....
XII	37	28	23	12	.....

The steadily increasing percentages of "Yes," the comparatively small percentages of "No," and the steadily decreasing percentages of "Don't Know" from Grade VII through the succeeding higher grades are noticeable features of these results. Experience in many schools has shown that the attitude of pupils toward this question is in general a quite reliable index as to what they will do. It is likely that many of the "Don't Know" group will decide to

finish their course. If 74 per cent of the eighth-grade group should actually continue until graduation and the other groups also fulfil their expressed intentions, the future holds a most interesting growth in the percentages of those entering who remain to graduate.

The percentage of each grade definitely planning on going to college varied from 16 per cent in Grade VIII to 37 per cent in Grade XII. The low percentage for Grade VIII may have some connection with the fact that the retardation in this grade was greater than in any of the others. One might well expect a larger "Don't Know" percentage in Table VI. The increasing percentages of "Yes" toward the higher grades is precisely what one would expect, and tends to guarantee somewhat the sincerity of the replies.

While it is not known what results should be expected from such an inquiry, it is perhaps safe to say that the student attitude which is represented in Tables V and VI appears to be quite favorable.

Instructional costs.—It is generally accepted that there will be an increase in the cost of instruction in Grades VII and VIII as a result of the junior high school form of organization. Table VII shows the per pupil cost for teachers' salaries during the year preceding and the two years following reorganization. The per pupil cost was found by dividing the amount spent for salaries by the enrolment.

TABLE VII

PER PUPIL COST FOR TEACHERS' SALARIES DURING THE YEAR PRECEDING AND THE TWO YEARS FOLLOWING REORGANIZATION, GRADES VII AND VIII

Year	Enrolment	Total Salaries	Per Pupil Cost
1915.....	143	$2,250.00	$15.73
1916.....	167	2,520.00	15.09
1917.....	200	2,520.00	12.60

The decrease of $3.13 per pupil for 1917 compared with 1915 is a correct picture of the conditions. The four teachers who had 143 pupils in 1915 had 200 in 1917 and were carrying a load altogether too heavy to permit of the best teaching service of which they were capable. The 1917 economy calls for apology rather than commendation, and the following year the situation was

relieved by additions to the teaching staff. No help was available from the other teachers of the six-year high school, as they too were carrying so excessive an amount of work that the state university and the North Central Association dropped the school from the accredited list on those grounds.

In computing instructional costs it is preferable to use average daily attendance rather than enrolment because the number of pupils in average daily attendance is a better index of the amount of work done. The complete cost of instruction should include classroom supplies as well as salaries. These items are omitted from Table VII because the figures were not available for 1915 for Grades VII and VIII by themselves. For the year 1916–17, however, these figures are available in such form that the costs can be determined for all twelve grades, the first six grades, Grades VII and VIII, and the four upper grades. The total instructional cost per pupil in average daily attendance for each of these grade groups is shown in Table VIII. The grade groups are ranked in the

TABLE VIII

TOTAL INSTRUCTIONAL COST PER PUPIL IN AVERAGE DAILY ATTENDANCE FOR THE GRADE GROUPS I–XII, I–VI, VII–VIII, AND IX–XII, 1916–17

Grade Group	Average Daily Attendance	Total Instructional Cost	Instructional Cost per Pupil
VII–VIII.....	183	$ 2,586.86	$14.14
I–VI.....	636	11,480.51	18.05
I–XII.....	1,022	20,839.14	20.39
IX–XII.....	203	6,771.77	33.36

table from the lowest to the highest per pupil cost. As in Table VII, the lowered instructional cost in Grades VII and VIII effected by the reorganization appears in Table VIII and calls for the same comment. There is no doubt that the cost for these grades should have been somewhere between the $18.05 and the $33.36. The increased revenue needed to correct this situation was not available until the following year.

High-school instructional costs are sometimes computed on the basis of the cost per thousand student hours (sixty-minute hours).

Table IX presents such costs for Grades VII and VIII for the four semesters of the two-year period 1915–17. The table gives also the median cost for all the subjects of the six-year high school during the same period. The method employed in this computation is as follows: Assume: Teacher, Miss A. Subject, algebra. Number of recitations in the semester, 95. Length of the recitation period, in the clear, 40 minutes. Number of pupils, 100. Salary of the teacher for the semester, $405. Fraction of the teacher's time devoted to the subject, all. $\frac{95\times40\times100}{60}=6{,}333\frac{1}{3}$ sixty-minute student hours, or 6.33 thousand student hours. $\frac{\$405}{6.33}=\$63.98$, the cost per thousand student hours for Miss A's algebra. If Miss A devoted half her recitation time to algebra, only half her salary for the semester would have been used. Because of the difficulty of estimating "fraction of the teacher's time devoted to the subject," the subjects taught by the principal were omitted.

TABLE IX

COST PER THOUSAND STUDENT HOURS FOR GRADES SEVEN AND EIGHT AND THE MEDIAN COST FOR ALL THE SUBJECTS OF THE SIX-YEAR HIGH SCHOOL, 1915–17

Subject	September 1915–January 1916	January–June 1916	September 1916–January 1917	January–June 1917
Arithmetic	$28.42	$27.63	$25.90	$28.18
English	21.59	21.35	25.40	24.87
General science	23.03	21.82	29.26	25.50
History, government, and hygiene	28.42	29.25	26.26	27.28
Median	33.55	37.90	40.36	46.26

The costs shown in Table IX appear relatively low when compared with similar computations for other high schools.[1] Until the school is able to command considerably increased financial support, in cases of unwontedly rapid growth in enrolment the teachers are likely to be overburdened, with a consequent lowering of costs to a point below what should obtain.

Summary.—Some of the results of two years of the six-six plan have been: (1) an improved elementary-school situation; (2) a

[1] J. F. Bobbitt, "High-School Costs," *School Review* (October, 1915), pp. 505–34.

reduction of the retardation in the system from a ratio of five retarded pupils to one accelerated to a two-to-one ratio; (3) considerable economy of time because of the possibility of completing Grades VII to XII in less than six years; (4) a quite unusual development in enrolment in Grades VII to XII; (5) a favorable attitude, probably more favorable than ordinarily obtains, toward further schooling; and (6) an unwarranted but temporary economy in instructional expense due to the inability of the school to secure additional teachers as rapidly as required by the growth of enrolment.

Conclusion.—Assuming the purpose of the public school to be that of serving all the children more completely during a school career of maximal length by meeting their needs more accurately, the reorganization here described has proved by two years' trial to be a successful means toward the fuller realization of that purpose.

THE VALUE OF THE PROJECT-PROBLEM METHOD IN ELEMENTARY EDUCATION

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The value of the project-problem method apparently is understood by few teachers. If understood, the statement "We know better than we do" is applicable. It is desirable, not only that teachers shall recognize the value of project problems, but that they shall utilize the problems as an invaluable aspect of educational training. The teacher of content subjects, such as geography, history, and nature-study, has a golden opportunity, through project problems, to vitalize her work.

A general aim of education should be to develop an ability in the pupils to interpret the factors—political, economical, social, and physical—involved in problems of timely moment. The most effective way of developing this ability is to give training in the interpretation of worth-while problems. The relative values of factors are rarely the same in two or more problems, but through actual experience in dealing with various problems the pupils learn the factors that are fundamental in the solution of types of problems and, through practice, develop an ability to weigh their relative significance in new problems. It is not to be expected that all pupils will show marked ability in working out every problem independently. It is to be expected, however, that most of them, as a result of problem studies, will be able to follow intelligently and discriminatingly the statements of leaders, emanating from the pulpit, platform, and press.

Several summarized illustrations of the project-problem method, as it is now being worked out in the St. Louis schools, are as follows:

ILLUSTRATION I

1. *Preparatory step.*—Peru, Bolivia, and Chile have had a vigorous war over the desert region of northern Chile.

2. *Problem raised.*—Is this desert region worth fighting for?

3. *Materials secured and interpreted.*—A consideration of the resources and their significance in supporting people and providing for the financial requirements of the government.

4. *Problem solved.*—The desert region is worth fighting for, primarily because of its nitrate deposits.

ILLUSTRATION II

1. *Preparatory step.*—From a study of maps showing the distribution of agricultural products and population in Argentina, it is found that over three-fourths of the people live, and over three-fourths of the agricultural products are produced, in the pampas region.

2. *Problem raised.*—Account for the dominating importance, in Argentina, of the pampas.

3. *Materials secured and interpreted.*—A consideration of factors in the pampas, favorable for agricultural production, thus accounting for its absolute importance, is made; and a study of limitations imposed, in the Gran Chaco region, the Andean foothills, and the Patagonian Plateau, is made to account for the relative importance of the pampas.

4. *Problem solved.*—The pampas region is of dominant importance because of its favorable location, area, topography, soils, climate; because of the relatively unfavorable physical factors elsewhere.

ILLUSTRATION III

1. *Preparatory step.*—A $2,000,000 fire in Norfolk, probably incendiary in character, and attributed to pro-German sympathizers, destroyed several of the main business blocks.

2. *Problem raised.*—Why should enemies of the United States be interested in damaging or destroying this city?

3. *Material secured and interpreted.*—The location of the city, with reference to the sea, with reference to the hinterland and its resources, transportation facilities, and important industries are studied.

4. *Problem solved.*—Because of the importance of Norfolk as a producer of essential goods, as a distributing center for both domestic and foreign trade, and as a naval center, the destruction of Norfolk would impair the strength of the United States.

While recognizing the educational value of project problems, the teacher also should hold in mind that they are not a "cure-all" for all the shortcomings of classes. Some pupils will be able to work out problems more effectively than others. Some pupils may make little progress in solving problems. It is so in the competitive life of adults. "To him that hath shall be given." Aided by the training they secure in the schoolroom, a few pupils may continue to grow in their ability to recognize and analyze important

problems, eventually becoming leaders of thought and action among men. Many pupils, constituting the largest proportion of the class, may develop an ability to interpret the material presented by leaders. A few pupils, a small proportion with limited capacities, unable to think clearly concerning problems, will need always to depend on the other two classes both for leadership and for interpretation. This difference in the amount of ability developed with respect to problems is not a weakness of the problem method, but is based on the varying capacities of individuals.

The project-problem method should not be confused with the use of problems to energize a class exercise. Irrespective of the method used—topical, question and answer, or project problem—minor problems requiring solution may arise. The project problem constitutes a unit of study that may require one or several recitations for its proper consideration.

This method has a fourfold aspect: (1) preparatory step, (2) problem raised, (3) materials secured and interpreted, (4) problem solved or material summarized.

1. *Preparatory step.*—An exercise is given or material is discussed, out of which exercise or discussion a problem or problems may arise. In many instances the solving of one problem may give rise to another problem. The preparatory material may be historical, statistical, or some happening in current events. The character of the preparatory material used is important, since the problem and the initial interest of the class in the problem largely depend on it.

2. *Problem raised.*—From the preparatory material a problem is raised. Spontaneous self-activity of pupils should be sought. A problem, ideally, is secured when the pupils raise it. It may be necessary, however, for the teacher to assist the pupils and occasionally even to raise the problem for the class. The significant thing is not that some pupil verbally shall state a problem, but that the class shall have a felt need, a problem—irrespective of how the need was created—which it wants to satisfy. Some care should be exercised by the teacher and the class in the final statement of the problem, as succeeding work hinges on the definite expression of a problem worth while.

3. *Materials secured and interpreted.*—When the class has a problem that it needs, or preferably wants, to solve, various sources of information, as textbooks, supplementary readers, pictures, maps, museum material, newspapers, magazines, and people, should be consulted for appropriate material. It is not enough that appropriate material shall be selected. It also should be interpreted so as plainly to show its bearing on the solution of the problem.

It is desirable that a teacher always shall have available a nucleus of material pertinent to the work for her grade. Different material bearing on the same general topics should be available, so that pupils may make actual contributions to other members in the class. The pupils will study with increased interest if they feel that they may secure material that no one else will, if they believe that they, with others, are working constructively on a problem, the solution of which has not been given them on the "ready to wear" plan. The pupils and teacher actually teach each other, and no one simply is "hearing" lessons that have been assigned from a textbook.

The contributions bearing on the problem may be listed on the board. It is well that the teacher shall have a fresh knowledge and a definite organization of material pertinent to the solution. She should not attempt to force her ideas on the class, however, unless it is absolutely necessary. It is far better to accept the pertinent points made by the pupils in the order in which they are made, thus encouraging a ready flow of thought. The pupils should not be thinking, What does the teacher want us to say? but, What does the solution of the problem demand?

4. *Problem solved or material summarized.*—If the problem has been solved the solution should be stated by the class as accurately, as definitely, and as concisely as possible. The final statement should represent the team work of the class. It is not to be expected that a definite answer can always be secured, or that the individuals of the class will always agree on the answer. In the actual problems of life adults often analyze and weigh the factors concerned, suspending judgment. With respect to many problems in life people have widely divergent views. Aside possibly from moral and patriotic considerations it is the purpose of the teacher, not to

impress her ideas on the pupils, but, working with them, to get them to come to their own conclusions, after all the evidence is in.

The project-problem method has the following advantages:

1. Subject-matter is considered in the way that people in general consider it, not merely as interesting facts, but as having some bearing on life-activities.

2. A definite task in the form of a problem challenges the ability of the pupils, which tends to arouse a determination to win.

3. All memory work is memory work in relation to the problem, which affords a motive for organizing and memorizing facts.

4. The consideration, selection, and elimination of material, with respect to the problem, requires rational thinking.

5. Because of the team work involved in working out problems, training in co-operative social service is given.

6. Because of the appeal that can be made to the social, intellectual, and emotional aspects of child life, through the solution of worth-while problems, greater interest and enthusiasm may be aroused.

7. The pupils acquire skill in the use of the mother-tongue as a tool for the expression, as well as for the transmission, of thought.

8. The project-problem method involves the use of all the faculties, thus tending to a balanced development.

9. The project-problem method suggests a criterion that will help in determining the relative capacity of children.

Vocational directors should find project problems of material assistance in directing pupils into the industrial lines best fitted to their capacities, abilities, and inclinations.

It is not maintained that the project-problem method should be used exclusively in the teaching of content subjects. It is the testimony of many teachers, however, that through the organization and consideration of material in the form of project problems, not only are the pupils more enthusiastic and interested in their work, but the material that carries over as a general residuum for life's equipment is much greater, and the ability to meet new situations is developed more effectively. No teacher should be content until she thoroughly has mastered the project-problem method, understanding not only its possibilities but also its limitations.

EDUCATIONAL WRITINGS

I. BRIEF REVIEWS OF ELEMENTARY-SCHOOL TEXTBOOKS IN CIVICS AND COMMUNITY LIFE PUBLISHED IN THE LAST FOUR YEARS

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An examination of some of the elementary-school textbooks in civics and community life published in the last four years reveals certain marked tendencies:

1. The emphasis is being shifted from a study of the machinery of government to a study of community activities, including those of government.

2. An academic knowledge of civic facts is considered less likely to function in producing good citizenship than a knowledge based upon actual participation in community activities, even if these be of the simpler and less organized kinds.

3. We are coming to a realization that the most effective way of helping a teacher to train her pupils in citizenship is to tell her of specific methods of training found effective elsewhere and to give her the information which she needs about community activities rather than to expect her to find it in meagerly equipped libraries. She is greatly helped, too, by having her attention called to specific topics which may be discussed in class after she and her pupils have investigated the local conditions. And lastly she is grateful for specific suggestions as to projects which her pupils may engage in to the end that they may grow in appreciation of the advantages of co-operative effort, and of the part which they ought to play in the community as citizens.

4. Writers of civics textbooks for the grades are organizing their material on the principle that the learning process is one of adding to and reorganizing experience. The common procedure has come to be to call attention to the familiar occurrences of home, school, and neighborhood, and then to teach the related principle as it applies to the larger community.

One of the most interesting of the recent books is *Community Civics*[1] by Field and Nearing. The text and suggestions are addressed to children of rural communities, for the authors believe that the development in social consciousness of the small village and the rural group is one of the most pressing

[1] *Community Civics.* By Jessie Field and Scott Nearing. New York: Macmillan, 1916. Pp. x+270.

tasks of the times. The book abounds in descriptions of actual enterprises carried on by farmer boys and girls, such as the work of corn clubs and canning clubs, the raising of prize poultry and animals, the improvement and beautification of school grounds, and sanitation surveys. These chapter headings or paragraph topics indicate the stress that is laid on the benefits accruing from co-operation: "Team Work in School," "Ways in Which People Can Be Neighborly," "The Country Community's Work for Good Roads," "The Country Community's Work for Good Health," and "The Country Community's Gains through Co-operation." Many suggestive pictures amplify the text. Probably the most valuable single feature of the book is the very full lists of projects suggested, together with the questions for investigation and discussion.

It is unfortunate that the text itself is not very well written. It is addressed to children, but the style is better adapted to adults. Many of the generalities might well be omitted unless they are intended as aids to the teachers. It is not an ideal textbook, but it ought to prove a source of much help to those who wish suggestions as to methods of teaching the elements of citizenship to children of rural districts.

One of the pioneer books of community civics, *The Community and the Citizen*,[1] by Arthur W. Dunn, published first in 1907, appeared in 1914 in a revised and enlarged form. The plan of the book is so well known as to require no statement here. Attention should be called, however, to two new features which make it even more valuable than the earlier edition: a comprehensive statement of aims and methods in the teaching of the subject, and two type lessons with explanations and comments. Mr. Dunn insists that if civics teaching is to be vital the object of study must not be the material of the textbook but the community itself of which the children are members. He lays emphasis too on the idea that the pupils possess civic interests which are the foundation of the civic interests of the adult members of the community, and that the best preparation for future good citizenship is the developing of the right sort of civic impulses and habits in youth. He urges that instruction in the subject aim to cultivate the following essential civic qualities: interest in one's civic relations, the right motives, a spirit and a habit of co-operation, good judgment, and initiative in meeting situations. This is in striking contrast to the tests formerly applied in evaluating the teaching of civics, for our practice at least indicated the belief that success in the teaching of the subject might be measured by the amount of information about governmental machinery which the pupils acquired.

Our America—the Elements of Civics,[2] by John A. Lapp, is adapted for the seventh, eighth, and ninth grades, or the junior high school. It will be found especially usable with classes which have had some experience in school projects

[1] *The Community and the Citizen*. By Arthur W. Dunn. Boston: D. C. Heath & Co., 1907 (revised and enlarged, 1914). Pp. xvi+313.

[2] *Our America—the Elements of Civics*. By John A. Lapp. Indianapolis: The Bobbs-Merrill Co., 1917. Pp. xii+399.

and which have developed a consciousness of the advantage which results from co-operation in effort.

The author departs from the traditional plan of organization. The book begins with references to ways in which people live in modern society; it calls attention to their needs and wants for food, clothing, shelter, property, education, enjoyment, liberty, and protection from harm; and it shows the part that government is called upon to play in satisfying these needs and wants. Then it takes up the ways by which such concrete problems as the providing of education, the making of roads, the protection of health, and the conservation of resources are met by government, local, state, and national. Such topics as lawmaking and law enforcement are treated as units, and the usual confusion which comes when national, state, and local functions are analyzed and studied separately is avoided.

The style is intimate and personal. The book is full of facts, but they are presented in an attractive and interesting way. The illustrations are unusually good. They fit the text. At the end of each chapter is a list of from fifteen to twenty questions for investigation and discussion. Then there follows a short list of well-chosen questions for debate. Also at the end of each chapter are two lists of references under the titles: "Where to Look for Further Information" and "Where to Write for Further Information." The bibliographies are evidently intended for the teacher rather than the pupil, unless he is in the later years of the high school. Such consecutive chapter headings as: "Some City Problems," "Some Road Problems," "Lending a Helping Hand," "Conservation," "Controlling Business," "Keeping the Records," give an idea of the fresh way of expressing the body of information which every upper-grade textbook of civics must contain.

In *Government as a Business*[1] Mr. Frank M. Sparks gives a very interesting account of how the American city actually carries on its business. Some chapter headings will serve to give an idea of the plan of the book: I, Government Is Business—The Stockholder, The Customer, The Product; II, Form of Government; Its Evolution: The Pure Democracy—The Representative System—The Board System; Its Revolution: The Commission Form—The Cabinet Form—The General Manager System; XVI, Elections; Development of the System—The Safeguards; XXI, Citizenship; What It Means—How It Is Acquired; XXVIII, Franchises: Privileges, Not Rights—The People First to Be Considered.

The book is appropriate to be used as a textbook in the upper classes of the high school, but it is likely to prove valuable as a reference or supplementary book in the junior high school and the upper grades. The expression is simple and direct. It is not theories but practices that are described. Every statement is based upon conditions actually existing in our American cities. The

[1] *Government as a Business.* By Frank M. Sparks. Chicago: Rand McNally & Co., 1916. Pp. xiii+284.

author avoids the sensational and unusual. His purpose is to show the kind of business the city has to carry on, how important it is that the business be done efficiently, how it is actually being carried on, in some cases well and in some cases poorly, and what our responsibility is as citizens or stockholders in the business. The volume loses in effectiveness as a textbook by not being illustrated and not having lists of suggestive questions for investigation and discussion. It would be improved as a reference book by the addition of an index.

Mr. William L. Nida purposes in *City, State, and Nation*[1] to present a number of the problems and needs of society and to show how they are being met by the local or state or federal government. More than two-thirds of the space is used for the consideration of city needs and local governmental activities. His list is comprehensive; it includes such less common civics topics as municipal markets, freight terminals, city passenger transportation, trees for streets, the problem of the poor, and new forms of government. In fact the large number of topics proves unfortunate, for in the small compass of the book no topic can receive more than meager and formal treatment. The author rightly avoids making his book an analysis of governmental forms, but he does not seem to present the material in a way to make it real and living.

The volume is fully illustrated, but too many of the pictures are of things and too few are of people engaged in community enterprises. The questions, too, fail to suggest with sufficient force that the pupils engage actively in investigation and discussion of community matters, or take part in projects which give real experience in practical citizenship.

Attention ought to be called to three books which have been revised within the last four years: *School Civics*, by Frank D. Boynton; *Preparing for Citizenship*, by William B. Guitteau; and *The Government of the United States*, by L. L. Schimmell.[2] All three give relatively brief consideration to the training of children in citizenship through participation in school and community projects. They describe with sufficient detail the development of our governmental institutions, the wide scope of the public service contributing to our welfare, the ways in which community business is carried on, and the extent to which all citizens must co-operate if the best results are to be obtained.

Preparing for Citizenship may be used in the seventh, eighth, and ninth grades of schools in which an elementary analytic treatment of our institutions of government is desired. The questions at the end of each chapter direct

[1] *City, State, and Nation.* By William L. Nida. New York: Macmillan, 1914. Pp. x+331.

[2] *School Civics.* By Frank D. Boynton. Boston: Ginn & Co., 1904 (revised in 1916). Pp. xxiv+401+xxxiv.

Preparing for Citizenship. By William B. Guitteau. Boston: Houghton Mifflin Co., 1913 (revised in 1914). Pp. xii+238.

The Government of the United States. By L. S. Schimmell. New York: Charles E. Merrill Co., 1906 (revised in 1916). Pp. 170.

the student to investigate specific phases of governmental procedure, especially those of his city or state. Reference material for both pupils and teachers is furnished. *School Civics* is written for the upper grades and for the high school. The presentation is rather mature. The pupil who has a sufficient background of history will find the frequent references to the ways in which our institutions have developed interesting. The questions at the close of each chapter refer almost exclusively to the text. *The Government of the United States* is a briefer manual designed for schools which allot only a small amount of time to civics. It also is an analytic description of our institutions of government.

The most ambitious and by far the most valuable recent contribution to the teaching of civics in both elementary and high schools is the monthly series of *Lessons in Community and National Life*, edited by Charles H. Judd and Leon C. Marshall, and published by the United States Bureau of Education in co-operation with the United States Food Administration. The lessons are being issued each month during the school year 1917–18. Each set has three sections, namely, Section A, for the upper classes of high schools; Section B, for the upper grades of elementary schools and the first class of high schools; Section C, for intermediate grades of elementary schools. Each section has thirty-two pages and contains three or four lessons. Copies may be purchased from the United States Food Administration, Washington, D.C., at 5 cents each, with reductions in price when more copies are ordered. The rate for 500 copies is $5.00.

The material might well be called "Reading Lessons in the Structure of Society." The lessons consist of descriptions of certain typical social and industrial institutions. They are so written as to give concrete notions of the relations which the people of a community, large or small, bear to each other. It is the kind of material which teachers have long wanted. Especially has the war made us realize the necessity of our having a better understanding of the extremely complex relations of the elements of our modern life.

The lessons describe in detail such factors of modern community and national life as division of labor and specialization of industry, co-operation and interdependence, the development of material and human resources, production and wise consumption, national control and food conservation, and customs, laws, and forms of government.

A few titles may be given to indicate more definitely the nature of the reading lessons: "The Western Pioneer," "The Varied Occupations of a Colonial Farm," "The Rise of Machine Industry," "A Cotton Factory and the Workers," "Feeding a City," "Saving the Soil," "Finding a Job," "Preventing Waste in Human Beings," "How the City Cares for Health," "The Commission Form of Government and the City Manager."

The subject-matter is of a very high class. It is prepared by people who know. It is well graded. Its wide use in schools throughout the country is sure to result in a great expansion of the national conception of the nature of citizenship in our republic.

II. COMMENT ON CURRENT EDUCATIONAL WRITINGS

1. *"Yellow journalism" in education.*—There are a number of experimental schools in this country. Most of them have not been handicapped by sensational advertising. A few, on the other hand, have been hampered by the premature publication of aims and purposes, of methods and of prophecies of anticipated results prior to the establishment of the schools themselves. In these latter cases, the advertising has been done quite generally by others than the professional educators in charge of the experiment. The most conspicuous recent example of this type of experimental school handicapped somewhat at the start by the utterances of certain of the laymen connected with its administration is the Lincoln School of New York City. The school has been established through the co-operative efforts of the Teachers College of Columbia University, and of the General Education Board in the sincere and constructive attempt to find out how to teach school better. Intelligent students of experimental education are thoroughly sympathetic with the constructive efforts of the professional educators who are establishing this school. There is considerable regret, however, that such a thoroughgoing experiment is not being conducted in close contact with the public schools.

A recent report[1] issued by Mr. Wm. H. Allen calls attention in a sensational way to striking examples of progressive educational practice in this country. Mr. Allen's clerks have compiled from the annual reports of school superintendents several score of instances in which particular systems are attempting to modernize elementary and secondary education. The examples are referred to in each case by either a very short quotation from the report or by means of photographic illustrations taken from the report. As a very sketchy presentation of outstanding practices this pamphlet will be of value to school men and women.

The report, however, is so obviously merely a vehicle for an attack upon the Lincoln School that we feel that the value of the samples of progressive practices has been distinctly neutralized. One cannot read this report without realizing that it is a cleverly designed attack upon an educational foundation and on a higher educational institution which undoubtedly has contributed as largely as any other single agency to the very practices which Mr. Allen points out as unusually progressive.

The general method by which the reader is told that every proposal of the sponsors of the new school is already consummated in many school systems of this country is as follows: First a quotation is made from one of the publications of one of the laymen connected with the Lincoln School and the General Education Board. The quotation each time is merely a sentence or a phrase and is entirely taken out of its setting. The second step in the procedure is to show by an isolated numerical statement that "so many" million pupils in

[1] *Rainbow Promises of Progress in Education.* By W. H. Allen. New York: Institute for Public Service. Pp. 88.

"so many" thousand schools as reported by "so many" hundred superintendents (in their annual school reports) are already studying in schools in which such things are done. The pertinent photographic illustrations and the concise quotations from the superintendents' reports reinforce what is intended that the reader shall believe is a thoroughly proven situation, namely, that educational "foundations" and private educational institutions in general are not proper agencies to experiment upon the teaching of children! Furthermore, the evidence in this report distinctly misrepresents the truth of particular aspects of the situation. Note, for example, on page 19, how the whole discussion of formal discipline has been presented in a warped manner by means of isolated quotations and by distinct misstatements concerning the contributions of various individuals. (Where, for example, did Professor Wm. C. Bagley, one of the most ardent protagonists of the *modern* theory of general discipline, "annihilate" formal discipline?)

To repeat our general reaction to this material: we commend any attempt to *constructively* summarize for school people best practices in school administration and teaching. We as heartily refuse to permit school people to be hoodwinked by combining such types of publication with vicious attempts to undermine constructive experimental work, whether it is done by public-school people or by progressive workers in private institutions.

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2. *A new report on studies of economy of time in elementary subjects.*—There is ample evidence that the movement for improving teaching in the elementary schools through the elimination of the nonessentials—of the deadwood in the courses of study—is actually influencing school practice in an important way. The most powerful agency in the propagation of this movement has been the Committee on Economy of Time in Education of the Department of Superintendence (National Education Association). The first and second reports of this Committee were published as Part I of the *Fourteenth Yearbook* and Part I of the *Sixteenth Yearbook of the National Society for the Study of Education*. The third report has just been published.[1] This report follows in form and content the previous two reports of the committee. The *Yearbook* presents nine studies in the determination of "minimal" essentials in the elementary subjects—two in arithmetic, one in geography, one in reading, two in English, two in history, and "a symposium of history."

Each investigation is reported very briefly. Each one studies a very small cross-section of the whole problem of "minimal essentials." As in the previous two reports the method of investigation is primarily that of "tabulation" of printed materials. The report is an interesting exhibit of the degree to which this method has now been adopted in the determination of essentials in courses of study.

[1] *Seventeenth Yearbook of the National Society for the Study of Education*, Part I. Bloomington, Ill.: Public School Publishing Co.; Pp. 134. Paper, $0.75 net.

Mr. H. E. Mitchell, for arithmetic, tabulates the frequency of occurrence of the arithmetical terms in a standard cookbook, in the pay-rolls of a number of artificial flower and feather factories, in marked-down-sales advertisements, and in a general hardware catalogue.

Miss Alice Camerer tabulates the judgments of fifty bank employees concerning the banking information that children should acquire in school.

Messrs. M. E. Branom and W. C. Reavis determine the geographical content which should be learned by all children (as far as this concerns countries, cities, and products) in accordance with certain criteria of area, population, and value of imports and exports. The data were tabulated in the main from the *Statistical Abstract of the United States*, 1915. These writers also report a test for minimal geographic information.

Mr. E. T. Housh tabulated the vocabularies of ten second-grade readers, compiling the words used, together with their frequency of occurrence.

Mr. J. F. Hosic reports a set of "standards of attainments" in English composition for Grades II to VIII inclusive. In chap. vi he also gives a brief descriptive statement of the ten quantitative studies that have been made in the field of the standardization of English composition.

Mr. B. B. Bassett tabulates the content of the national and city party political platforms in order to determine the content of a course of study in civics. In chap. viii another statistical study is made of the content of twenty-two modern books covering present-day political problems.

Messrs. Marsten, McKown, and Bagley report the study of an attempt to determine some of the misplacements of emphasis in the teaching of elementary history. In these they check the present emphases which are given to events by current textbooks against the emphases given to the same objectives in standard books of reference by the judgment of students of history. They also check against the need for historical knowledge in interpreting current discussions of national problems as these are revealed in periodical literature.

To these studies is added a symposium on the purposes of historical instruction in the seventh and eighth grades. Contributing to this symposium were two sociologists, three professors of history in universities, one professor of educational sociology, and an anonymous contributor. The material is introduced and summarized by Mr. W. C. Bagley. This symposium represents "an attempt to formulate aims or objectives for the teaching of elementary history and to evaluate current aims of objectives. Not *what is* but *what ought to be* is the point at issue here. . . . . What ought to be concerns the point of view of realizing the national ideals."

Such a yearbook report can serve three functions: First, it has a distinctly educational influence. It is a means of educating the school world to a sound attitude toward the reconstruction of courses of study. We see clearly in these days that we are teaching too much. We are recognizing more and more clearly that there is deadwood in the curriculum in each subject of study, and the use of the quantitative method, as illustrated by these studies, is enabling

us to put our fingers on the precise point of elimination. In the second place, these studies put forward illustrative methods of studying such problems. They are valuable in getting others, both students in schools of education and administrative officers and teachers in school systems, to work at the solution of such problems. Thirdly, such studies report in very small cross-sectional form a few facts which may, by gradual accumulation, establish specific bases for the design of courses of study. It must be recognized, however, that the detailed reports themselves must always be published which will make available in printed form the specific facts established by the investigations in question. It is to be hoped from now on that instead of more of these "educational" and "illustrative methods" studies on minimal essentials we will have very detailed reports made upon the specific problems of elimination in each of our subjects of study.

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3. *A new textbook on high-school education.*—Professor Inglis' new book[1] is an attempt on the part of the author "to make a systematic analysis of the factors and principles involved in a constructive theory of secondary education." In making this constructive theory, Professor Inglis has evolved a book of some seven hundred pages, entirely modern from every standpoint. Whenever it is practicable Professor Inglis reduces his facts to tables, so that he has altogether 155 tables and numerous charts. This book illustrates again the necessity for the modern school man to have some knowledge of statistical methods.

The volume is divided by the author into three parts: Part I, the raw material with which the schools deal; Part II, the schools from the sociological standpoint; Part III, an application of the principles laid down in Part II. This book shows that an enormous amount of historical and contemporary material has been examined by the author. At the close of each chapter is appended a very good bibliography. Thought-provoking questions are also found at the close of each chapter.

After one has read Professor Inglis' book the question naturally arises as to the place of such a volume in the literature of today. It is obviously designed so that it can be used as a textbook, yet it is doubtful if any modern school of education would have a place for a text which is so inclusive. It undoubtedly, however, would be a very satisfactory book to go on a teacher's reading list, because it would bring the teacher in touch with modern thought on all phases of secondary education and would introduce him to a well-selected bibliography.

Professor Inglis, on page 368, states what he calls the *three fundamental aims* of secondary education. In brief they are the social civic aim, the economic vocational aim, and the individualistic avocational aim. In his discussion of the place of the different subjects in the curriculum, he constantly

[1] *Principles of Secondary Education.* By Alexander Inglis. Houghton Mifflin Co., 1918. Pp. 720.

uses these three aims as the justification or the lack of justification for the teaching of any subject. It is also interesting to note that he adopts the "spread" theory of formal discipline, and seems inclined to lean toward Professor Thorndike's attitude on the matter.

Advocates of the junior high school will be gratified to note that Professor Inglis constantly mentions the intermediate school. His treatment of the junior high school historically is not all that could be desired, but his position on its place in any general scheme of secondary education is absolutely sound. His stand in regard to the subjects which should be included in the junior high school curriculum is in accordance with the best thought on the subject. The junior high school is to Professor Inglis essentially a place where the "diagnostic" function of education is most prominent.

Space will not permit a review of the very excellent chapters dealing with the place of the various subjects in the junior and senior high school curricula, but it is interesting to note that, on page 454, in discussing the place of modern languages, he takes the stand that the value of teaching modern languages for commercial purposes has been vastly overrated by school authorities. This discussion of the place of modern languages will be helpful to school men, particularly at this time.

By way of criticism, one cannot help but feel that Professor Inglis would have done better to have omitted or at least to have abridged chapters v and vi and to have greatly reduced chapters i, ii, iii, and iv and to have used the time and space thus gained for a more adequate discussion of such subjects as *supervised study, extra curriculum activities, socialized recitations*, etc.

In conclusion, it may be stated that Professor Inglis' book will be particularly valuable to those who have not had an opportunity to attend a school of education recently, because it will put them in touch with the best modern thought on the live issues in secondary education. The danger of such a volume always is that it will give a superficial knowledge of modern tendencies in education. This, it is felt, has been minimized through the very excellent bibliographies appended to each chapter.

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4. *A bulletin describing the use of tests in the classroom.*—The new publications in educational measurement point to the fact that school men in adopting standardized tests and scales for use in the schools recognize clearly the need of placing in the hands of school-teachers material illustrative of methods of interpreting the results of using such tests. A new publication[1] from the Department of Educational Investigation and Measurement in Boston, Massachusetts, illustrates the development of the movement very well and

[1] *Arithmetic*, Bulletin XIII, Department of Educational Investigation and Measurements; Boston Public Schools, December, 1917; Pp. 83. Paper, 7 cents.

should be of distinct *educational* value to administrative officers who have charge of such work in other cities. This bulletin has been prepared to help teachers and others interpret the results obtained by using standard tests. It gives sets of illustrative records and in parallel form descriptive interpretations of the records quoted. For example, tables of scores of achievement in arithmetic are given, followed by an "interpretation of the above record." Charts and statistical tables concerning the speed and accuracy of individual schools in arithmetic are printed and each is accompanied by interpretations.

This type of material is followed by a section which illustrates the value to teachers of record cards of the achievements of individual pupils, the record card passing along with the pupil as he is promoted from grade to grade. Illustrative graphs are given for the achievements of individual children, each interpreted in turn. Records are presented comparing the achievements of individuals on various types of tests and general remedial measures are suggested to help the teacher to take advantage of the facts which he has found. For example, a section is included on "Methods of Eradicating a Deficiency." To the present time this represents the best *use* of standardized tests in school administration that we have yet seen. It stands at the present time as the forerunner of the movement to make detailed psychological studies concerning *how children learn* particular phases of the subject-matter of the various elementary-school subjects. *It is to be hoped that bureaus of educational research in city systems will at an early date set up types of this detailed analysis of learning in the form of carefully controlled classroom experiments.*

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5. *A new yearbook on educational measurement.*—One of the most striking needs in the quantitative movement in education has been an adequate summary and evaluation of the results of the "measuring movement" and of the direction in which such tendencies are being worked out in school practice. The recently established National Society of Directors of Educational Research has presented its first report in Part II of the *Seventeenth Yearbook of the National Society for the Study of Education*, "*The Measurement of Educational Products.*"[1]

In this report there are two distinctly different types of material. Messrs. L. P. Ayres, E. L. Thorndike, and C. H. Judd contribute, respectively, "a historical study and an evaluation of educational measurements," a discussion of "the nature, purposes, and methods of measurement," and "A Look Forward" into the future of educational measurement. These articles are very brief and general and are aimed at acquainting the stranger to the movement with the types of information which are being acquired.

Mr. Ayres's discussion is very brief and hardly inclusive of all the important stages of the measuring movement in this country. Mr. Thorndike's discussion is a very scholarly and inclusive discussion of the elements of his problem, but

[1] *Seventeenth Yearbook of the National Society for the Study of Education*, Part II. Bloomington, Ill.: Public School Publishing Co., 1918. Pp. 194. Paper, $0.90 net.

it is written in such technical language as to be very difficult indeed of comprehension by the lay reader. Mr. Judd's "Look Forward" points out, on the other hand, the extent to which the measurement has already been taken over into the carrying on of school practice, and shows two or three directions in which the movement will develop most helpfully. The remainder of the volume is devoted to the specific discussion of particular school problems.

Mr. M. E. Haggerty reports the results of a question-blank inquiry covering two hundred cities and inclusive of changes that have been made in the work of the school following the use of a standardized scale or test. The changes enumerated include: classification of pupils, school organization, course of study, methods of instruction, time devoted to the subject, and methods of supervision. In each case are given tables, detailed examples, quotations, and summaries to illustrate present practice in these matters.

Messrs. F. W. Ballou and E. A. Nifenecker discuss the organization of the work of bureaus of research in city school systems. Mr. Ballou describes how a city school system can select tests, can give tests, can score the papers, can tabulate, interpret, and make use of the results. Mr. Nifenecker has shown in five pages of general material that we ought to have city bureaus and has named a few points that ought to be in mind in establishing them.

Mr. E. J. Ashbaugh, using the University of Iowa Bureau of Educational Service as an example, shows how co-operative work throughout a state can be done from a university center.

Mr. W. S. Monroe lists the existing tests and standards in chapter vii, giving the name of the test, the reference which describes its construction, addresses to which to write to secure tests, and reprints in some cases the standard scores that have been developed from the tests in question. There are one hundred and nine items in this list, many of which, however, cannot properly be called standardized tests.

Mr. W. A. Averill discusses in chapter viii the related forms of quantitative work that can be done in addition to the specific use of educational tests. These forms include, for example, studies of the course of study, of pupils' marks, of methods of rating teachers' efficiency, of promotions and non-promotions, of elimination of pupils from school, etc.

A brief chapter is included by Mr. B. R. Buckingham descriptive of certain statistical terms and methods. It is distinctly to be regretted that the discussions of this chapter emphasize in some places a terminology in statistical methods which we are now trying to eliminate in the standardization of our use of quantitative methods.

Mr. S. A. Courtis discusses the training of elementary teachers in educational measurement through normal-school courses.

Mr. George Melcher makes some suggestions for experimental work in chapter xi. One of the most helpful contributions of the entire report is a bibliography by Miss Edna Bryner containing six hundred and six references

and organized under various heads. The only criticism we would make of this bibliography is that it includes so much that the novice in the field may be troubled to know how to start in the selection of material. It is undoubtedly the most complete bibliography available in the general quantitative field.

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6. *A manual of hygiene-teaching for elementary teachers.*—The improvement of the teaching of health work in the schools has waited upon the construction of textbooks and manuals of method which will tell teachers and administrative officers how to administer this newcomer in the course of study. There has been a number of textbooks written on health work in the schools recently. Most of them, as is to be expected in the beginnings of a new movement, have been very general in nature. Mr. Andress' new book[1] is of primary interest because it relates directly to the work of teaching health in the public schools. Teaching health means, to the writer, telling teachers how to get pupils to practice health. He first shows the great importance of hygiene in the curriculum, and by reference to new educational publications such as educational and psychological textbooks, school survey reports, etc., shows that the teaching of hygiene is not regarded as one of the fundamental elementary subjects even by our leading investigators and experimenters. He shows, furthermore, that the teaching of hygiene has failed primarily because we have not recognized the need of teaching it as a subject of study; because teachers are not trained to teach the subject; because hygiene is so recent in its organization as a school subject that its psychology and pedagogy have not been even roughly formulated; finally, because textbooks in the field still are confined to the subjects of anatomy and physiology. These types of discussion are succeeded by statements of various aims of education. This chapter is of value primarily because of the specific form in which the aims are stated for teachers, and also because of the very practical suggestions that are made regarding the formation of health habits.

A long chapter follows on method. It is very practical; it is specifically direct; it discusses the psychology of habit in such a way as to be very helpful to the teacher who is trying to develop health habits in her pupils.

The latter half of the book is devoted to a discussion of important related problems and their solutions. Examples of these problems are: the relation of alcohol and health and the work of the teacher in making it clear, her work in connection with the use of tobacco, the prevention and care of colds, fresh air and tuberculosis, cleanliness, exercise and play, care of the teeth, etc. With each discussion the writer accompanies his practical suggestions with informational material concerning trade addresses, bibliographic material, etc. The monograph finally closes with a chapter on "The Teaching of Hygiene in Rural Schools." It is the judgment of the review editor that this monograph should

[1] *The Teaching of Hygiene in the Grades.* By J. M. Andress. Boston: Houghton Mifflin Co., 1918. Pp. xii+177. $0.75.

receive very wide attention from administrative officers, who in turn should call the attention of elementary-school teachers generally throughout the country to the importance of having at hand this work.

7. *A manual of suggestions for elementary-school teachers on the treatment of speech defects.*—The school is taking on many specialized responsibilities which formerly were thought to be outside its sphere. One of the most specialized responsibilities that we are just now becoming conscious of is the treatment of important speech defects. With all of our emphasis upon the teaching of oral reading and elocution we have done almost nothing systematically for the very large percentage of children in our schools who are subject to speech defects. For this reason school teachers generally will welcome Dr. Swift's monograph[1] on this problem. All the more will this be true because it has been prepared by a medical specialist who has developed experienced insight into educational and psychological ways and means of treating speech defects. The monograph is written from the practical standpoint but in terms of a clear knowledge of the importance of good habits of speech. The writer shows, for example, the importance of the early environment of the child—how speech habits of childhood are hard to eradicate; that many become permanent defects; that defective speech marks the inefficient worker; and, furthermore, that the education of the child will quite largely depend upon his habits of speech. He next proceeds immediately to methods of correcting defects of speech. General methods are taken up; the modern treatment of stuttering; specific exercises are suggested; methods of treating phonetic defects are outlined. It is shown how parents can help, and how the school physician and superintendent of schools can co-operate. As suggested above, the discussions are all practical and relate directly to the correcting of individual defects. There is not, however, the detailed psychological treatment of the causes and remedies for speech defects that one could wish for.

Chapter iii is devoted to the elimination of minor speech disorders—nasality, monotony, harshness and hoarseness, etc. A general discussion is then offered showing how the teacher may acquire a proper standard of speech. One of the most important chapters in the monograph has to do with methods of improving speech in kindergarten and elementary grades. The writer shows that prevention to be effective necessitates that we start our program of speech reform in the kindergarten. In this chapter we find some of the most direct and helpful psychological suggestions. The monograph closes with a discussion of speech disorders among abnormal children and how to treat them.

8. *For social workers and educators.*—Messrs. White and Heath have written a book[2] for social workers and educators which aims to apply the

[1] *Speech Defects in School Children and How to Treat Them.* By W. B. Swift. Boston: Houghton Mifflin Co., 1918. Pp. ix+129. $0.75.

[2] *A New Basis for Social Progress.* By W. C. White and L. J. Heath. Boston: Houghton Mifflin Co., 1917. Pp. xiv+229. $1.25.

principles of economics to the solution of outstanding educational problems in our larger cities. Their ideas are based upon the experience which they gained in making the survey of the needs of establishing in Pittsburgh a municipal foundation for the study of important educational problems and of the way in which the study of the University of Pittsburgh was made to reveal the place of the university in that program. They are concerned primarily with the fact that our urban communities have developed many important educational problems which they believe are not being solved by the present heterogeneous control of the various educational agencies of our cities. They show, for example, that a city like Pittsburgh, with its heterogeneous forms of educational organization and administration, needs to have its facilities centralized and co-ordinated and directed to supply the real educational demands of the city more systematically. The book is very abstractly written and smacks of economic and sociological theory throughout. Paraphrased, it means in brief that in each community there ought to be a municipal foundation whose function it is to analyze the occupational needs of the community, to collect information and statistics concerning industries and other vocational activities, and concerning schools; to make specific suggestions concerning courses of study to fit the needs of the community; to study the population groups within the community, and to act as a general clearing house through which to co-ordinate all of these educational activities. Thus the crux of the problem to them is the municipal foundation; their suggestion is that this be centered in the municipal university.

Social workers and students of city school administration will find some suggestive ideas in this book showing how their plan of dividing a city into sections of a size that can be covered adequately has already brought about great improvement in health conditions, and how the same plan can be used for handling educational and social problems in general. It is to be regretted that writers from the various sociological fields make use of such an abstract terminology that such a book is very difficult to read. Their pages abound for example in such terms as "ultimates," "demands," "supplies," the "unit plan," "correlation," etc. One has to know rather intimately the content of their field to follow easily their discussions.

III. BRIEF DESCRIPTIVE STATEMENTS OF EDUCATIONAL PUBLICATIONS

1. *A Comparison of the Salaries of Rural and Urban Superintendents of Schools.*[1] By A. C. MONAHAN AND C. H. HYDE. United States Bureau of Education, Bulletin No. 33, 1917. Pp. 68.

The bulletin, aimed "to show how inadequate are the salaries of county superintendents in most states, if persons properly qualified for the position are to be obtained," studies the salaries paid January, 1917, in the thirty-nine states with such

[1] These descriptive statements submitted by Mr. J. T. Cavan, graduate student, University of Chicago.

officers, and to the similar officials of Virginia, Nevada, New York, and New England. The salaries of city superintendents were collected directly from the cities, and include 89 per cent of the cities of over 2,500 population employing a superintendent.

The 3,087 rural superintendents received an average of $1,375, the 2,134 city superintendents, $2,260. The average county superintendent's salary is 61 per cent of the average city superintendent's salary. In Maryland, New Jersey, and Pennsylvania the average rural superintendent's salary is higher than that of the average city superintendent, the New Jersey county superintendents all receiving $3,000, the highest state average. In Montana and Wyoming the difference in average salary was $1,681 and $1,654 in favor of the city superintendents.

Table II gives the average salary by states paid to each type of officer, in order of size of salary. Table III studies one to six counties in thirty-seven states selected at random from counties which include at least one city employing a superintendent, giving the name of the county and city, the population of each, and the respective salaries. Table IV gives rural and Table V city superintendents distributed according to salary received (to nearest hundred dollars). Of the county superintendents, 1.7 per cent received less than $500, 25 per cent less than $1,100, 25 per cent $1,100 to $1,300, 25 per cent $1,400 to $1,500, 25 per cent $1,600 or over. Of the city superintendents 0.2 per cent received less than $1,000, 25 per cent less than $1,800, 25 per cent $1,800 to $2,000, 25 per cent $2,000 to $2,500, 25 per cent $2,500 or over. Only thirty-five rural superintendents (1.1 per cent) received over $3,000. These figures are also given by states. Table VI (fifty-three of the sixty-eight pages of the bulletin) lists state by state the community employing, and the salary for county superintendents and city superintendents and assistants.

2. *A Study of School Recesses.*[1] By W. H. HECK. The University of Virginia Record, Extension Series, September, 1917. (Charlottesville, Va.)

Reports a study of forty-one city, town, and rural school systems in all parts of Virginia. He summarizes his findings on length of school day and recess allowances: Each of Grades III–XI have approximately six hours of school—five hours of school work and one hour of recess. In each, recess is about 17 per cent of total school time; for each minute of recess there are about 4.8 minutes of school work. He suggests optimum lengths of school day for each grade and schedules of recess times so based; discusses space, equipment, games, sex segregation; recommends that recess be supervised, not by each teacher in turn, but by the best qualified teacher, compensated by greater prestige and salary and in relaxation periods at other times of the day. Discusses recess problems: eating, drinking water, rainy-day schedules, and the use of toilets.

3. *Agencies of Supervision*[1]. Prepared by MAYBELL G. BUSH; issued by the state superintendent, Madison, Wisconsin.

A brief booklet of suggestions to those doing supervisory work; discusses supervision in general, the administrative activities of supervision, and the supervisory agencies, such as the course of study (six of the thirty pages), the daily program, grade and department meetings, demonstration teaching, rating and choosing of teachers, special studies of school conditions, standard tests and measurements, minor agencies

[1] These descriptive statements submitted by Mr. J. T. Cavan, graduate student, University of Chicago.

of supervision (visiting days and periods, exhibits, reading-circle work, written criticisms), classroom visitation (suggesting thirty-one complex questions the supervisor should have in mind), and a forty-item bibliography. Contains diagram of supervisor's duties and their relative importance.

4. *Annual Report of the Commissioner of Education for the Year Ended June 30, 1917.* Vol. I, pp. vii+103; Vol. II, pp. vi+692.

Volume I is a much abbreviated report of education in the war, educational surveys made by the Bureau of Education, of general activities of the Bureau, of educational conditions in other warring countries, and of very far-reaching recommendations of the Commissioner concerning the future development of the Bureau. The Commissioner announced a change in policy concerning the form of the *Annual Report.* He will issue, beginning with the fiscal year of 1919, a biennial instead of an annual report.

Volume II contains the usual statistics of educational activities covering national, state, county, and city schools, public and private schools, elementary, secondary, and higher schools.

5. *Proceedings of the High-School Conference, University of Illinois, November 22–24, 1917.* Compiled by H. A. HOLLISTER. School of Education, Urbana, Illinois, Bulletin No. 19, December 10, 1917. Pp. 354. Paper.

The largest single high-school conference that meets annually in this country is the University of Illinois High-School Conference. In 1917 its total attendance was 1,700. Its total registration exclusive of the university was 1,547. Its influence reaches throughout the high schools of the entire state. A most important form of this influence is found nowadays in the report of the proceedings of the conference. The new report will be found to contain very valuable material in the form of addresses, reports of committees on the standardization of courses of study, use of tests in the various subjects, detailed syllabi outlining materials and methods in various subjects, analyses of important errors in English, mathematics, etc., important statistics on particular high-school problems, together with suggestions on school administration.

6. *The Public School System of San Francisco, California.* United States Bureau of Education, Bulletin No. 46, 1917. Pp. 649. Paper.

A report to the San Francisco Board of Education of a survey of the public-school system made under the direction of United States Commissioner of Education. The survey was conducted in February and in August, 1916. Twelve members were on the commission, six specialists from the Bureau of Education, six specialists from outside the Bureau of Education, three of the latter being now engaged in administrative work in city school systems. The survey was financed jointly by the United States Bureau of Education and by the San Francisco Board of Education. Report makes use of the tabular and graphic methods of comparing the status of education in San Francisco with that in a small group of cities of the same size. The items studied in the report are: an analysis of the city of San Francisco, a statistical study of the school system, how San Francisco organizes and administers its school, statistical studies of the finances of the school, the status of school buildings and grounds, general analysis of the elementary and high schools, reports on the achievements of pupils as shown by tests in handwriting, reading, arithmetic, and spelling, very detailed discussions on

civic education and music in the public schools, separate discussions on each of the following: instruction in art, in home economics education, manual training, vocational education, education of the immigrant, school-directed gardening.

7. *The Township and Community High-School Movement in Illinois.* By H. A. HOLLISTER, United States Bureau of Education, Bulletin No. 35, 1917. Pp. 48.

A report of interest to high-school administrators covering the development of the township high-school movement in the state of Illinois. About half the monograph is devoted to a study of the history of the movement in that state. Detailed quotations are made from historical documents showing the beginning of the movement in 1867 and its various forms of development down to the present date; the details of the new laws controlling the establishment of high schools are given. The material advantages of this form of high-school organization are set forth. The writer shows by his statistical tables and by descriptive discussions how readily this type of organization adapts itself to almost any situation. Detailed material is given illustrative of some of the educational advantages of community high schools. The specific practice in particular localities is itemized.

8. *Vocational Education.* By EMILY ROBISON. New York: H. W. WILSON, 1918. Pp. xl+303. $1.25.

This handbook is a compilation of quotations from articles, monographs, and books covering the general subject of vocational education. Thirteen quotations are made on various phases of vocational education for youth; 26 refer to industrial education, 8 are on agricultural education, 3 are on household arts, and 6 on vocational guidance. The quotations are mainly of a general inspirational sort aiming to show the purpose and scope of the various phases of the movement in this country for vocational education. One of the most valuable features of the book is a forty-page bibliography, covering the sources of the best bibliographic material, the best references on agricultural education, commercial education, household arts, etc. As a general introduction to this field of study the volume should be of some service to beginners in this field.